Volume 74 no 6
June 2006

Amateur Radio

The magazine for AUSTRALIAN radio amateurs

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Bill Roper VK3BR

WIA Life Member

plus

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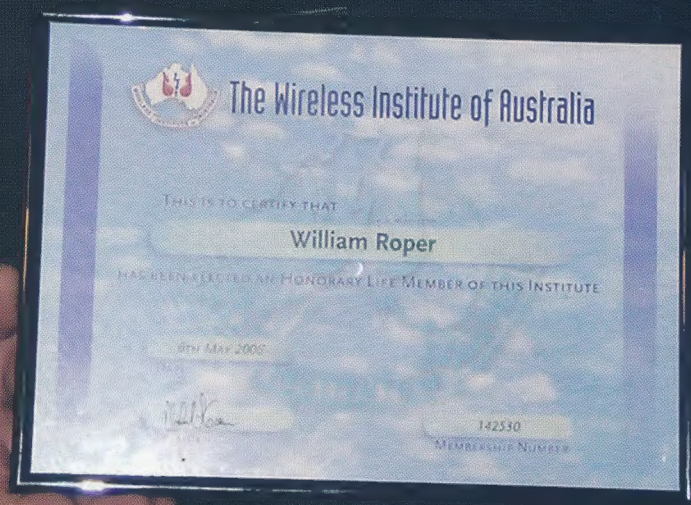
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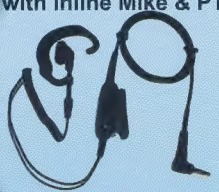

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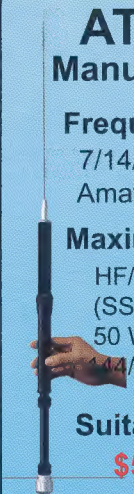

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Amateur Radio

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Our Cover this month

Bill Roper VK3BR with his well-deserved Honorary Life Membership Certificate. An amateur for 45 years and one-time WIA Federal Manager, Bill is still heavily involved in the activity and its administration. He currently is the prime draftsperson for all the technical articles published in this magazine and is the Secretary of the Publications Committee.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, 'How to write for Amateur Radio' is available from the National Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

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The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

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Editorial Comment

Peter Freeman VK3KAI

6 months down already!

Our production system appears to be settling down, especially as I become used to the regular tasks. This issue represents 6 months as editor.

Importantly, there have been some changes in machinery at the printer, resulting in improvements in print quality. As you will have noticed, we included colour content inside the magazine last month. This was a trial and the Publications Committee has certainly heard many good comments.

No internal colour, other than the usual colour highlights, in this issue, primarily because of the content. We will publish colour body content in future issues, when we have appropriate material on hand.

AGM outcomes & the www

A number of members attended the Annual General Meeting in early May. Some have commented that the numbers were low, about 30 members attending in person. What conclusion can we draw? Perhaps it indicates that members are generally happy with direction in which we are moving? It is hard to judge, without conducting a survey of members. It was pleasing to hear that almost 25% of members took the time to vote in the election of office bearers.

I have been reminded that some members still rely on the printed word, namely AR, for news of WIA activities. With this in mind this issue carries an extensive report by our President, Michael Owen VK3KI, as presented to the Open Forum following the formal part of the AGM. The formal reports have been published on the WIA website.

In these times of modern communication technologies, it is easy to presume that most have Internet access. Outside of the WIA activities, I am aware of many groups now running classes in computer use, including the Internet. Groups such as the local Neighbourhood House and University of the Third Age (U3A) run such courses at very modest cost. There are other options, often requiring the payment of higher fees. If you do not have a computer at home, check at your local library? You might be pleasantly surprised!

The Internet is impacting on traditional publishing in many ways – some enhancing efforts to publish, whilst some are in competition with the printed word. There are large amounts of information residing on pages published on the "Web" by enthusiasts. Some of it is very useful; some requires careful consideration before using that information.

Material for AR

Further to my comments about colour, I must remind those interested in forwarding material for publication that we do have a guide to authors available. It is on the WIA website on the AR Magazine page. Hard copies are available on request.

A comment regarding photographs submitted. With the modern digital camera (or even the mobile 'phone), it is easy to capture that quick photograph. Think about the composition of the photograph, especially the background. You might capture the subject, but will it be lost in the background, especially if it is printed in black & white?

Taking photos of group activities can also be challenging. It is easy to capture the scene, but will it be of interest to others when printed in AR? Side-on shots of people or a row of the backs of people's heads rarely pass muster.

I encourage you to write up reports of that latest project or the local club activity. Do not be disillusioned if it does not appear immediately – we have a review process that may take material some time to move through before it comes to me for publication. There are also other considerations – for example, I did receive some addition photos of Club stations' set-ups for the John Moyle Memorial National Field Day. As I had published several pages of reports in the May issue, I have not used these images. They will be kept on hand – one never knows when they might be useful.

I trust that you find the issue informative. We can read more about how the much-discussed E-H antennas really work, and there are two useful construction projects on offer – an antenna analyser for VHF/UHF and a Q-meter. I must thank Denis Johnstone for his rapid processing of the results from the John Moyle Memorial National Field Day. And no, I still have not received any additional material regarding the individual results from the Manager of the RD Contest.

73 Peter

Michael Owen VK3KI

AGM and the President's report to the Open Forum

The WIA Annual General Meeting and Open Forum were conducted at Bankstown, Sydney on Saturday 6 May 2006. The Notice of Meeting, Accounts and Report on behalf of the Directors were included with March AR.

However, the Directors Report with the Notice of Meeting is a statutory document and so does not attempt to cover all aspects of what the WIA does. This year, as last year, I presented a more detailed report, covering a much wider range of the WIA's activities. While this report has been placed on the WIA website, we think it is worth including in AR, to ensure that it is available to almost every member. So, what follows is a slightly edited version of that report.

1. Introduction

This report is submitted to the Open Forum to be held immediately following the formal Annual General Meeting on 6 May 2006, and outlines the activities of the WIA since 1 January 2005 until today, covering the last full financial year which was the 2005 calendar year. It is submitted on behalf of and following consultation with all of the directors. It does not repeat the formal matters set out in the Directors' Report submitted with the Annual Accounts to the AGM.

It is a significant period because this report covers the first full financial year of the restructured WIA as a single national body.

It is also significant because it covers a period of momentous change, not only to the WIA but the introduction of the Foundation licence, and the WIA's new examination structure.

2. The Restructure of Australian amateur licensing

It was at the last Open Forum that the members present unanimously passed a resolution expressing their concern at the delay in the introduction of the so called "Outcomes" of the Review of the Amateur Service, and requested the ACA (as it then was) to introduce the new Foundation Licence and the new licence privileges without further delay and in any event not later than 30 June 2005, and instructed me to convey these views to the Authority.

On 10 May 2005 I wrote to the Acting Chair of the ACA, and in part said:

> "The WIA believes that the further delay is unacceptable, and would be counter-productive, and rather than promoting a licence structure appropriate to today's needs, will simply create frustration, loss of motivation and, unfortunately, ill will. .... Accordingly, and formally, on behalf of the WIA I request that the Authority proceed to introduce the amateur service licence structure contemplated in the Outcomes paper without further delay and in any event not later than 30 June 2005, with the WIA accepting that other changes to the regulation of the amateur service will be delayed."

On 26 May 2005 the WIA was advised that the Outcomes of the Review would be introduced in two phases, the first to introduce the licences, the second to introduce the other changes.

In fact, the changes to introduce the Foundation licence and the new licence structure came into effect on 19 October 2005.

The other matters are yet to be finalised.

I comment on the Foundation and other licence matters under the heading "The WIA Examination Service".

Of the further changes foreshadowed, the one that we are most often asked about is Australia participating in CEPT TR 61, usually by overseas licensees about to visit Australia.

We have been in constant communication with ACMA on the second phase of changes.

We have been able to demonstrate some aspects of the use of the Internet to ACMA, one of the areas of change that raises complex issues.

One factor that complicates a number of issues is the Determination under S119 of the Radiocommunications Act in respect of "qualified operators" of amateur stations. I am of the view that a Determination under that section creates more problems than it solves, simply because of the width of the word "operate" and that a better solution would be other subordinate legislation. The issues are technical, at best resulting in provisions that are undesirably complex.

The WIA's position is to seek minimum regulation, with no less privilege than at present. For example, at least for Standard and Advanced stations, and particularly for club stations, the right to allow others to "operate" under supervision has always been an important part of demonstrating amateur radio and training radio amateurs.

I do not know when the further amendments to the Amateur LCD will be released, and I hope that we will continue to be given the opportunity to comment, particularly on a final draft.

In the context of the general area of regulation, and particularly in relation to the whole examination process, I would like to pay tribute to Alan Jordan of ACMA.

He has always been willing to listen to the WIA's views, even if not always agreeing with them, always happy to exchange ideas and always open to listen to new information and always of very great assistance in relation to the examination area.

3. The WIA Examination Service

The introduction of the Foundation Licence and the requirement for a practical assessment for every first licence qualification (usually a Foundation Licence) foreshadowed in the "Outcomes"

This report continues on page 16

WIA News

Result of Postal Ballot for Directors

WIA President Michael Owen VK3KI formally announced the result of the postal ballot for the election of 3 directors for a 2-year term at the WIA Annual General Meeting held in Sydney on 6 May 2006.

The result of the ballot was:
Trevor Quick VK5ATQ, 715 votes, elected
Robyn Clare Edwards VK6XRE, 694 votes, elected
Philip John Wait VK2DKN, 694 votes, elected, and
Edward (Ted) Thrift VK2ARA, 477 votes.

It was also announced that the Board did not wish to lose retiring director Ted Thrift's special knowledge and enthusiasm and so had created the role of National Club Coordinator, and appointed Ted to that position.

Ted also continues as joint editor of the Callbook.

Ron Wilkinson Award 2006 to VK3DAC and VK2DQ

The Ron Wilkinson Award is one of the oldest and most important of the awards made by the WIA and was made possible through the generosity of Mrs Mary Wilkinson, widow of the late Ron Wilkinson VK3AKC.

At the WIA Annual General Meeting, WIA President Michael Owen VK3KI announced that the WIA Board had decided to present the Ron Wilkinson Award jointly to two people who, in different ways, had contributed greatly to the WIA's role in the introduction of the new licence structure, and in particular, to the new WIA amateur qualification assessment system.

The Board had decided to present the Award to Fred Swainston VK3DAC, the principal of the WIA's nominated RTO, and to Ron Bertrand VK2DQ, who had contributed greatly to all aspects of the development of the syllabi and the new assessment system, as well as writing with Phil Wait the successful Foundation Licence Manual.

WIA announces details of Club Grants Scheme

Immediately prior to the Annual General Meeting held in Bankstown on 6 May 2006, the Board of the WIA adopted Rules for the Club Grant Scheme.

The full Rules are on the WIA website, so that all can fully understand them.

The Board has decided the main time line, but is still to appoint the three members of the Grant Committee. It will finalise these appointments shortly and will announce the appointments as soon as possible.

The WIA Board has allocated $5,000 for distribution to qualifying Affiliated Clubs. The object of the scheme is to promote and advance amateur radio, the WIA and its Affiliated Clubs by supporting useful and/or innovative projects undertaken or to be undertaken by Affiliated Clubs.

Clubs will need to lodge their application for a grant by Monday 10 July.

Affiliated Clubs with a membership including at least 50% WIA members (as defined in the Rules) qualify to participate, though in the first year the Board has discretion to allow a lesser percentage in special circumstance.

Clubs will need to their lodge their application for a grant by Monday 10 July.

Full details can be found in the Rules, but Clubs should note that their application should include details of the Affiliated Club, including the name and contact details (including a phone number and email address) of a contact person to represent the Club in relation to the Application, the names and callsigns (if any) of each person responsible for the management of the project proposed and the Membership Percentage claimed by the Club, details of the project proposed, the purposes to be achieved by the proposal, an explanation setting out how the proposal advances the purposes of the Scheme, a detailed costing of the proposal including the amount to be or already contributed by others, the amount of Grant requested, and such other information and material as the Affiliated Club considers will better explain and support its proposal.

The Grant Committee will recommend to the Board the projects that should be supported and the amount to allocate to each supported project.

All clubs are urged to carefully study the Rules and note the date for lodgement of submissions as well as the requirement that to qualify a club must have at least 50% WIA members among its members.

The Board will amend the Rules as necessary to clarify or remove any ambiguities that are identified.

WIA AGM and Open Forum

The second Annual General Meeting of the national WIA took place on Saturday the 6th of May, at the Bankstown RSL Club, Sydney.

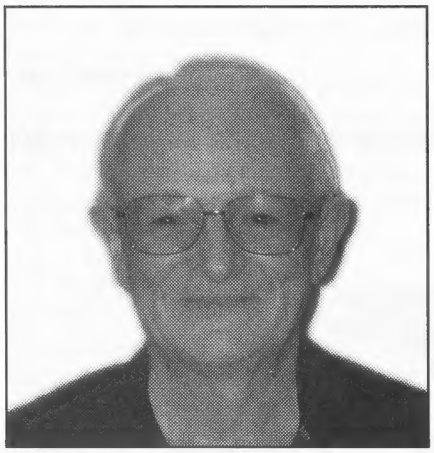
The WIA Treasurer, Bruce Bathols VK3UV, presented the audited Annual Financial Statement, confirming that the WIA had ended the 2005 year in a sound financial position.

The Annual General Meeting was the formal part, and immediately the formalities finished, the meeting continued as an Open Forum, where any WIA related matter could be discussed in the context of reports on virtually every WIA activity

Michael Owen presented the President's Report, saying that although WIA membership was increasing, strengthening membership depends largely on individual clubs promoting WIA membership to their members. The President asked the clubs, in the interests of all radio amateurs, to be more proactive in supporting the WIA and promoting WIA membership.

The President thanked the very many people who have made the second year of the national WIA such a success. He said that the success would not have been possible without the strong support of a great number of people, but most of all the man with the permanent phone in his ear, WIA Secretary, Chris Jones VK2ZDD.

WIA makes Bill Roper VK3BR Honorary Life Member



The WIA Constitution says that in consideration of special services to the Institute or amateur radio the Board may nominate a member as an Honorary Life Member to a General Meeting for its approval.

At the Annual General Meeting held at Bankstown, Sydney on 6 May 2006, the WIA Board nominated Bill Roper VK3BR as an Honorary Life Member.

Bill's contribution to the WIA and amateur radio extend over many years. He became an amateur over 45 years ago, was Treasurer of the old WIA Victorian Division, and when the WIA's magazine Amateur Radio was transferred from the Victorian Division to the then new federal company in 1972, Bill became its first editor and has continued to contribute over the years to the magazine.

For over 10 years, with Ron Fisher VK3OM, Bill prepared the Federal broadcast tapes.

After a period as WIA Federal Manager, Bill again became heavily involved with the Publications Committee, and for more than 10 years now he has been the prime draftsperson for all the published technical articles in AR, as well as acting as Secretary of the Publications Committee.

The meeting unanimously approved the nomination of the Board, and so Bill Roper VK3BR has become an Honorary Life Member of the WIA.

So far as Bill was concerned, this was all completely unexpected and he was very surprised when Michael Owen VK3KI, WIA President, telephoned him immediately after the meeting to congratulate him.

Try This

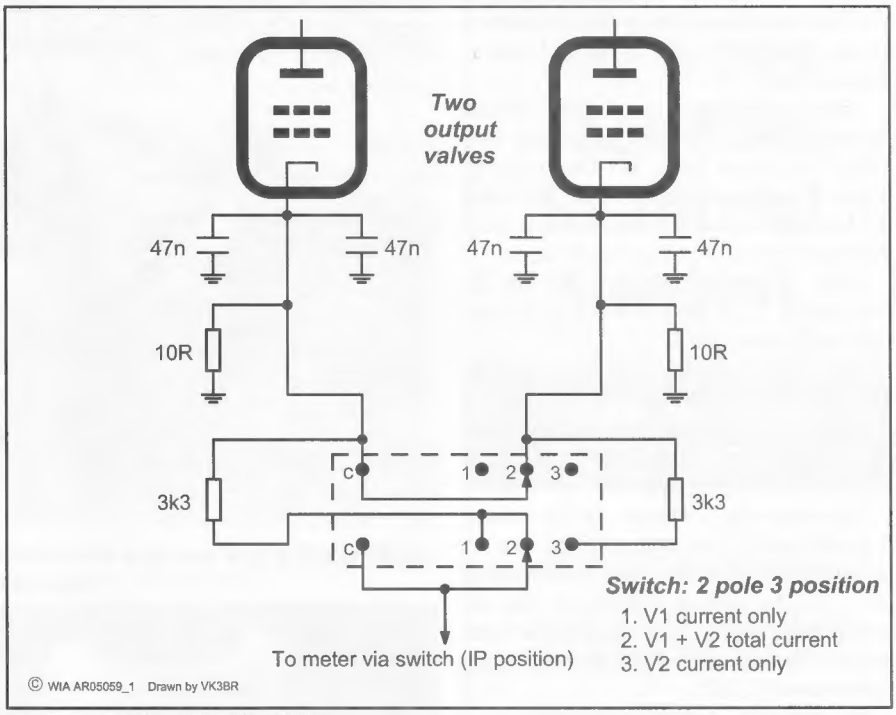
Simple modification to TS-520S

David Jackson VK5DWJ

The attached diagram shows how to modify the cathode current metering circuit of the TS-520S to allow measuring either individual cathode currents of each output tube, or the combined current as normal.

This can be useful if you have doubts about the condition of each tube.

I used an available small three position slide switch, fitted conveniently in the lower left hand corner of the case.



Over to you

An efficient response

In the September and October 2005 issues of *Amateur Radio* a two part article of mine was published on the development of radio in Outback Australia.

Brian VK2GCE believed I was quite wrong in my statements that some valves were not efficient in Class C operation and emailed the then editor in October 2005 putting me right. I had quoted around 40% efficiency for valves like the 1D4/1L5G battery valves. I also quoted that some other valves like the 4CV100,000E were over 80% efficient. Brian believed that the valves always complied with a particular formula that he quoted and that my statements were quite wrong.

I was emailed a copy of Brian's "over to you" as a right of reply and I replied and this showed up in March 2006 issue. However, Brian obviously received a copy of my "right of reply" as his original submission was withdrawn and an amended full-page version has been published in the May issue. It is noticeably different from his original submission! I could pick points in Brian's submission that may not stand scrutiny, but I choose not to.

I don't know if Brian is trying to blind me with science or what but I would suggest that readers of AR re-read my original reply to Brian on page 49 of the March issue, to see what I had to say. I stand by all that I said in that submission.

Rodney Champness VK3UG

Portable operation on 160 metres

Lionel Curling VK3NM/VK6DC

Operating portable on 160 metres offers some challenges to get reasonable results due to fairly large antennas, or large number of windings on a short former.

I use an IC-706MKIIG into a 14 ft (approx 4.3 m) helical with 1500 turns of wire which was a prototype wound over three weekends by the Members of the Frankston and Peninsula Amateur Radio Club.

I have used this antenna from various locations around Port Phillip Bay and other locations from Mt Dandenong, Lake Corangamite about 160 km west of Melbourne, Johns Hill lookout near Menzies Creek, and East Melbourne.

Most of the operations occur on the Melbourne 11.00 am 160 metre 1843 kHz AM coffee break net.

Very good results come from seaside locations with less ground wave absorption and from inland locations signals, although signals can vary depending on the QTH of the station being worked.

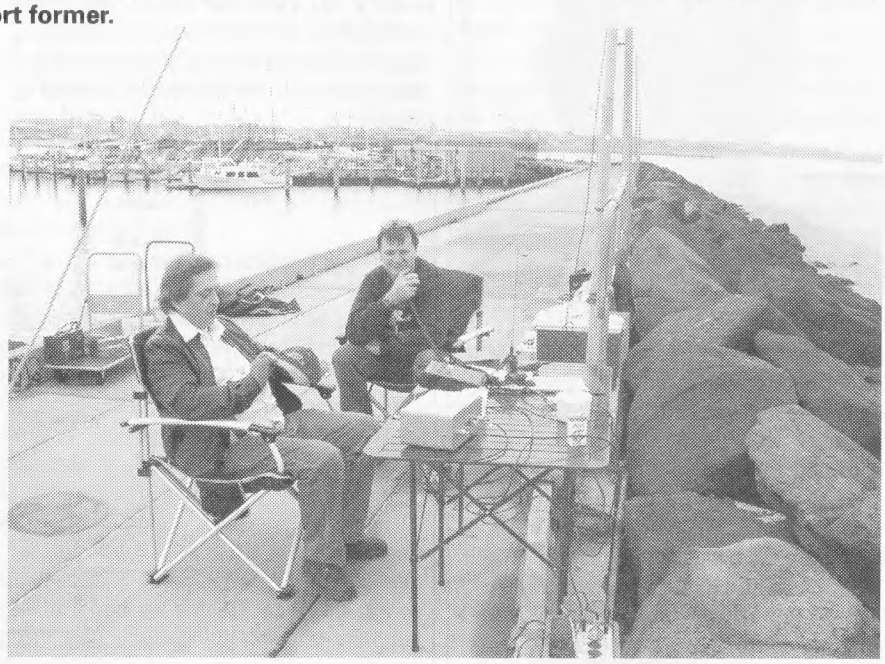
The morning I was on Phillip Island I could only hear one station, due to overwhelming power line interference all over the island, and could not do much better from East Melbourne with a lot of industrial noises coming from Melbourne's CBD.

Operating from Lake Corangamite, which is a fair way out from Melbourne, some of the signals were very weak and I had to change to SSB for reliable contacts. The IC706MKIIG only puts out 30 watts of AM into an aerial with an efficiency of perhaps 2 percent, whereas I get about 100 watts out on SSB. This made it a bit easier to be copied by other stations.

Some of the more notable contacts I have made from my helical antenna include working Grant VK2AXB from Portsea and the VI5PN IOTA station on St Peter Island, just off Ceduna, South Australia, on SSB with good signals from Wantirna.

I operated from the car park of the Science Works Museum in Spotswood during the Remembrance Day contest, working VK2, VK5, VK7 and country VK3s on SSB under the callsign of VK3WIA for the event.

While I was in Perth, I set up in the



David VK3ZLZ (left) and Jack VK3WWW operating portable from the breakwater at Brighton Beach pier.

The 160 m kit ready to use for portable operations.

car park at City Beach and heard some reasonable signals from VK3 and VK5, including Ken VK3YDK, but no contacts were made; there is always next time.

Sometimes I use a full size dipole fed with 300 ohm slotted ribbon via a tuner with excellent results.

By using a bait launcher to get the line over tall branches to hoist my dipole up high, I worked most of VK and ZL from my friend's property at Launching Place during the 2004 Trans-Tasman 160 metre contest.

On Melbourne Cup day, Jack VK3WWW and I set up for 160 metres on the very long Brighton Beach pier with the intention of using Jack's kite antenna. However, when there was not enough wind we used Jack's dipole with the apex up at 12 metres supported by a squid pole. Not much was heard for the early morning skeds to VK2, but the aerial was used for some 80 and 40 metre contacts leading up to the 11.00 am coffee break net on 1843 kHz, making a lot of contacts around Melbourne. David VK3ZLZ turned up fairly early in the morning to help out and later Peter VK3YE also turned up.

Peter has been portable on 160 metres from various locations using his magnetic loop antenna with good results. During the morning there were a lot of people fishing, some of the more curious looked at our set-up. A few questions were answered about amateur radio so it was a bit of PR for our hobby as we let them know about the new Foundation Licence.

For my portable 160 metre dipole I made a kit for storage and transporting by using a small olive barrel (I made sure I cleaned out any leftover olives first!). As you can see from the photo, I can keep all the essentials such as a bait launcher, fishing line, nylon rope, PVC tape, lead sinker balls, wind up torch, safety glasses and of course the aerial stored in this easily transportable barrel.

The safety glasses are very important to protect your eyes while pulling back on the launcher in case the rubber breaks and flicks back towards you. A torch is useful if it is dark. I use a wind-up magneto type so as not to have to worry about batteries going flat.

Other items I take with me include a small knife in case I have to cut the cord or the fishing line, an ATU for tuning up the aerial, a small 12 volt soldering iron and solder in case I need to do any repairs on the aerial, a good car battery or a second one (when running 100 watts the peak current can be 20 amps from the battery), a squid pole in case there are no trees and, last but not least, drinking water if it is a hot day.

I hope to catch up with you on 160 metres soon. For more information on the 'Top Band', I have a web site dedicated to 160 m – the URL is http://www.qsl.net/vk3nm/160mt.html

ar

VK3NM's vehicle with the 160 m whip at Port Arlington.

Plan ahead

The Gippsland Gate Radio & Electronics Club Hamfest

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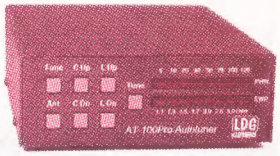
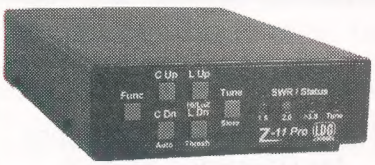
AT100pro Auto Tuner + Switch

160 through 6 meters, 1 to 125 watts, 4200 memories, 2 position antenna switch, power and VSWR LED bargraph.



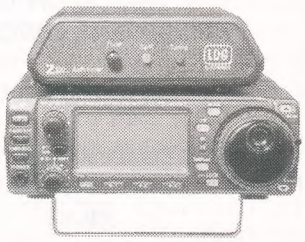
Z11pro Auto Tuner



160 through 6 meters, 0.1 to 125 watts, 8000 3D memories, LED display for VSWR and status and User installable battery holder (not supplied).

Z100 Auto Tuner

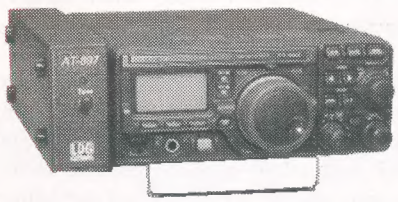
160 through 6 meters, 0.1 to 125 watts, 200 memories, LED indicators for VSWR and status.



AT1000 High Power Auto Tuner

160 through 6 meters, 20 to 1000 watts, 200 memories, cross needle power/ VSWR meter, protection against high power tuning.

AT897 Auto Tuner



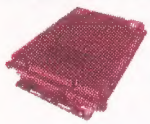
160 through 6 meters, 0.1 to 100 watts, 200 memories, mounts right on the side of the Yaesu FT-897

SGC

SGC 235 High Power Auto Tuner

160 through 10 meters, 3 to 500 watts, 170 memories, waterproof ABS enclosure.

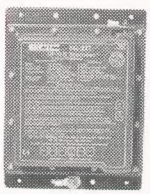
SGC 230 Auto Tuner



160 through 10 meters, 3 to 200 watts, 170 memories, waterproof ABS enclosure.

SGC 237 Auto Tuner

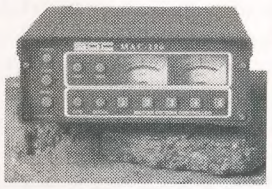
160 through 5 meters, 3 to 100 watts, 170 memories, waterproof ABS plastic covers on an anodised aluminium base.



SGC 239 Auto Tuner

160 through 10 meters, 3 to 200 watts, 170 memories, aluminium case with exposed PCB*

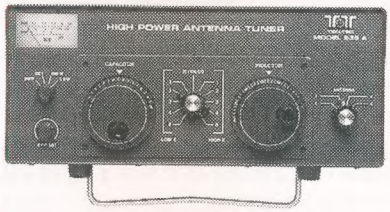
MAC 200. Auto Tuner plus Switch



160 through 5 meters, 1.5 to 200 watts, 168 memories, 5 position antenna switch (3 coaxial, 1 end fed, 1 balanced), VSWR/Power meters, extruded aluminium case.

Ten Tec

Model 238B High Power Manual Tuner plus Switch



160 through 10 meters, 2000 watts, wide matching range, internal VSWR/Power meter.

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UHF aerial analysers, and Wheatstone's wonderful bridge

Jim Tregellas VK5JST
endsodds@internode.on.net
http://www.users.on.net/~endsodds

On the day *Amateur Radio* (May 2005) published my design for a HF aerial analyser, ham friends started asking me for construction details of a VHF/UHF unit. In trying to satisfy these requests, I've had some fun and learnt a lot, and a design has evolved that is startlingly simple and works well. If you have a reasonable junk box, you should have most of the bits already.

Anyone who has done formal electronics training will be familiar with the Wheatstone bridge. Somewhere, early in the course, a diagram is drawn complete with battery and sensitive galvanometer, and it is carefully explained how to measure resistance by "balancing" the bridge. Complex mathematics are used to demonstrate this, and then the whole subject is quickly dropped because "modern" electronics can be used to measure resistance far more conveniently. The quite clear implication which emerges is that, apart from the odd specialist application, this old DC measurement technique belongs in the 19th century and should be forgotten.

In fact, nothing could be further from the truth.

With AC applied to the bridge, and some more complex mathematical analysis (which the author has yet to see in any text), the bridge can be used to measure SWR very accurately over an enormous frequency range; and without any of the problems of frequency and power sensitivity shown by almost any other SWR bridge design. Even better, only readily available components are used.

The Theory

In the circuit shown in Figure 1, imagine that the load is a pure resistance of 50 Ω. The AC voltage appearing at both points A and B (V_A & V_B) will be 0.5 V RMS. After half-wave rectification, V_A becomes V_1 = 707 mV DC. Similarly, V_B becomes V_2 = 707 mV DC, assuming perfect diodes (no turn-on voltage). V_3 is the rectified version of the voltage difference between A and B, and because V_A and V_B are in phase and of equal magnitude, V_3 = 0.

Now make the load an open circuit. V_A will still be 0.5 V RMS and V_1 still 707 mV DC. V_B will be 1 V RMS and so V_2 will be 1.414 mV DC. V_3 will be 707 mV DC because the difference between V_A and V_B is now 0.5 V RMS.

Finally, short the load terminals. V_1 will remain at 707 mV DC. V_B will be zero as will V_2, and V_3 will be 707 mV DC because the difference between V_A and V_B is again 0.5 V RMS.

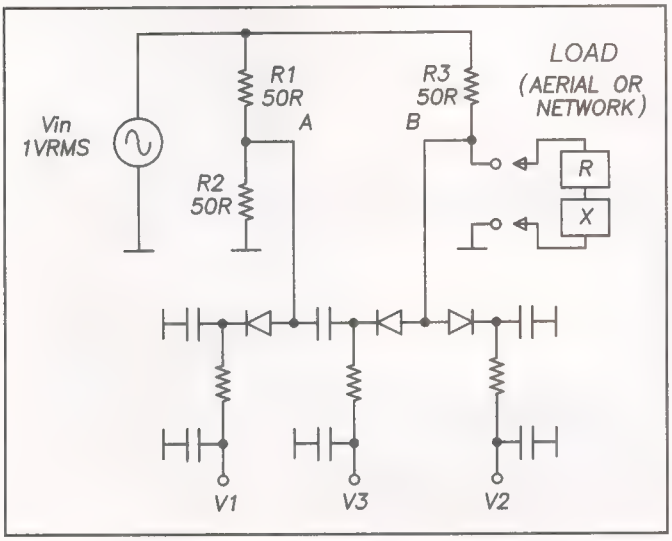

Fig 1 – The Wheatstone bridge for AC.

Summarising, the voltage at A and therefore V_1, did not change with the load. The voltage at B, and therefore V_2, rose from 0 to 1.414 mV as the load was varied from zero to an open circuit. The voltage V_3 dropped from 707 mV (load shorted – SWR infinite) to zero (50 Ω load - SWR=1) and then rose again to 707 mV with an open circuit load (SWR infinite).

What we have just described is how an SWR meter works. V_1 represents forward power, V_2 represents reflected power and V_3 represents the difference between the two, or SWR.

Taking all this a little further it is easy to see that for a known value of input voltage, V_2 can be used to produce a resistance scale on a meter while an SWR

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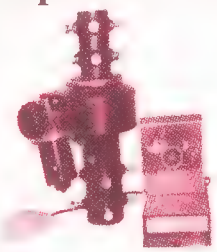

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scale can be produced from V3.

But so far we have only talked about purely resistive loads. What happens when the load is a complex mixture of resistance and capacitance, resistance and inductance, or pure capacitance or inductance?

To answer these questions requires really heavy-duty mathematics and frankly is beyond the scope of this article.

Suffice to say that the maths clearly shows that, irrespective of whether the load is complex or purely resistive, the indicated SWR will be correct and the SWR scale can simply be produced by using purely resistive calculations.

For those who would like to personally demonstrate this for themselves, I have included two vector diagrams from which the appropriate mathematics can be derived. Figure 2 is for the general case of a complex load, whilst Figure 3 is for the special case of a purely capacitive or inductive load.

The diagrams are constructed as follows. Because Vin is always the hypotenuse and the voltage across the resistive and reactive components must always have a

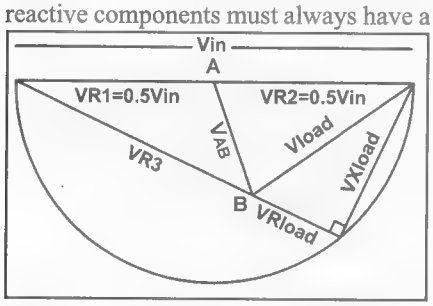


Fig 2 - Vector diagram - general case.

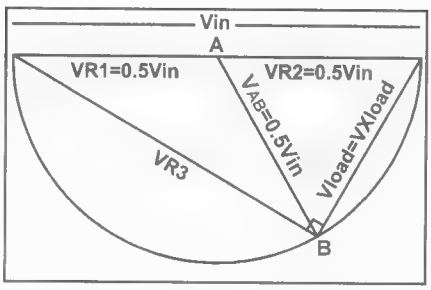


Fig 3 - Vector diagram - pure inductive or capacitive load.

90 degree phase relationship, from simple trigonometry the intersection of the resistive and reactive vectors must always be on a semicircle of a radius Vin/2. In the case of a purely reactive load this leads to the remarkable conclusion that the difference voltage VAB is constant at Vin/2 (irrespective of the size of capacitor or inductor). This is correct, as the SWR for a purely reactive load will always be infinite, which Vin/2 represents.

Not surprisingly, the meter scale produced from V2 for resistance is not accurate for complex loads. But it is also clear that, for any complex load comprising a known value of resistance in series with a reactance, the voltage indicated for this load will always be higher than the voltage indicated for that value of resistance alone, because the overall load impedance is higher. Putting this another way, the indicated voltage will always be minimum when an antenna is at resonance and therefore purely resistive, and the resistance scale then reads correctly. On either side of resonance the voltage will rise because of the reactive term which is introduced. We can use this observation very practically by noting what happens to the indicated resistance as we vary frequency and this idea is covered in greater depth later in this article.

Other conclusions which emerge from studying this circuit are:

(a) The generator never sees an SWR of greater than 2:1 (with an open circuit load) and so there is no chance of doing serious damage to a driving source due to high SWR.

(b) This is a measurement instrument not an SWR meter, because three quarters of the applied power is lost in the measurement network (instead of radiating from the aerial). Furthermore, because of the need to use non-inductive low power resistors, it is a low-power animal (2 watts maximum) and cannot be left permanently connected as a monitor in a transmission line.

(c) In order to make the forward voltage drop of the diodes negligible, fairly large

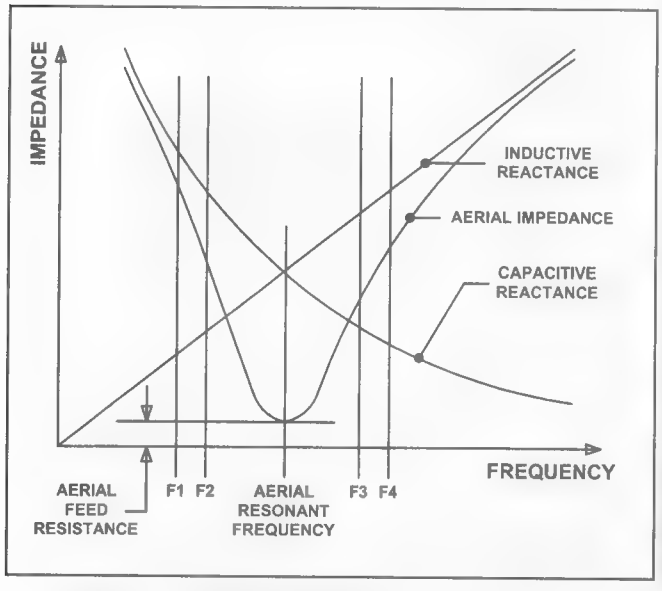


Fig 4 – Impedance, reactance, resonance chart.

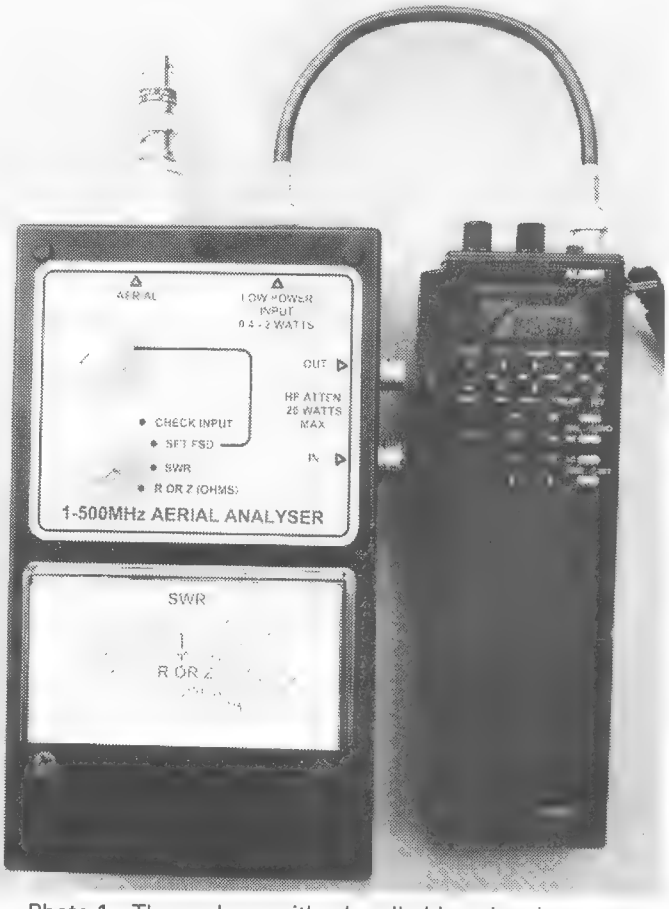


Photo 1 – The analyser with a handheld as signal source.

driving voltages must be used. Further, if the bridge is to function well at 70 cm, only Schottky barrier diodes can be used with their great speed and low forward voltage drop (approx. 200 mV). In fact, the meter scale (see Figure 6) includes the effects of diode forward voltage drop.

The Practical Analyser

Constructors of the previous HF analyser were so happy with its performance that they soon began demanding an instrument that covered 6 and 2 meters, and also hopefully 70 cm. It also had to be cheap and easy to construct! This is a brutal design requirement. After a whole lot of research, two things emerged. First, frequency pre-scaling ICs which work to 500 MHz are not readily available unless you are prepared to order in quantities of at least 1000, and so an LCD frequency display derived via a microprocessor is just not on. Second, the design and construction of a "flat" high-power driving source (say 1 watt from 30-500 MHz) was going to be an expensive nightmare and also (third) very heavy on battery use.

How to overcome these three obstacles? Simple: use the amateur's hand-held radio (with its frequency display) as the driving source. The result is a cheap and basic instrument with no batteries which does all the things an amateur needs to design and tune a resonant aerial system.

The last part of the exercise is designing the test network to be purely resistive. This is not simple because all modern resistor types have built-in inductance due to the laser spiralling used to adjust their value to within tolerance.

Some careful measurements were made on standard ¼ watt metal film resistors with zero lead lengths to establish whether their self-inductance was negligible at 70 cm. Sadly, this is not the case and even placing three units in parallel to reduce the effective inductance by a factor of three (and also increase the power rating), does not help much either. But the technique does work at 2 metres and so two versions of the Analyser have been created.

Version 1 works accurately to 150 MHz and uses standard ¼ watt metal film resistors. It is for those constructors who don't feel confident about using surface mount components. Version 2 uses 1206 type ¼ watt surface mount resistors in the bridge and works to 500 MHz accurately.

Use a type N connector for the aerial circuit if the unit is for UHF applications. SO239/PL259 connectors have high dielectric losses, high capacitance, and poor impedance matching at 450 MHz, and will cause very significant errors on the resistance scale (around 15%) even with no load on the instrument. The much lower capacitance of the type N connector will still cause slight FSD errors on the resistance scale at 70 cm, but this capacitance is swallowed in the 50 Ω line when a load is connected to the Analyser. The losses and mismatch of a SO239/PL259 connector are not! If a SO239 must be used, find one with clear plastic insulation, not light brown bakelite!

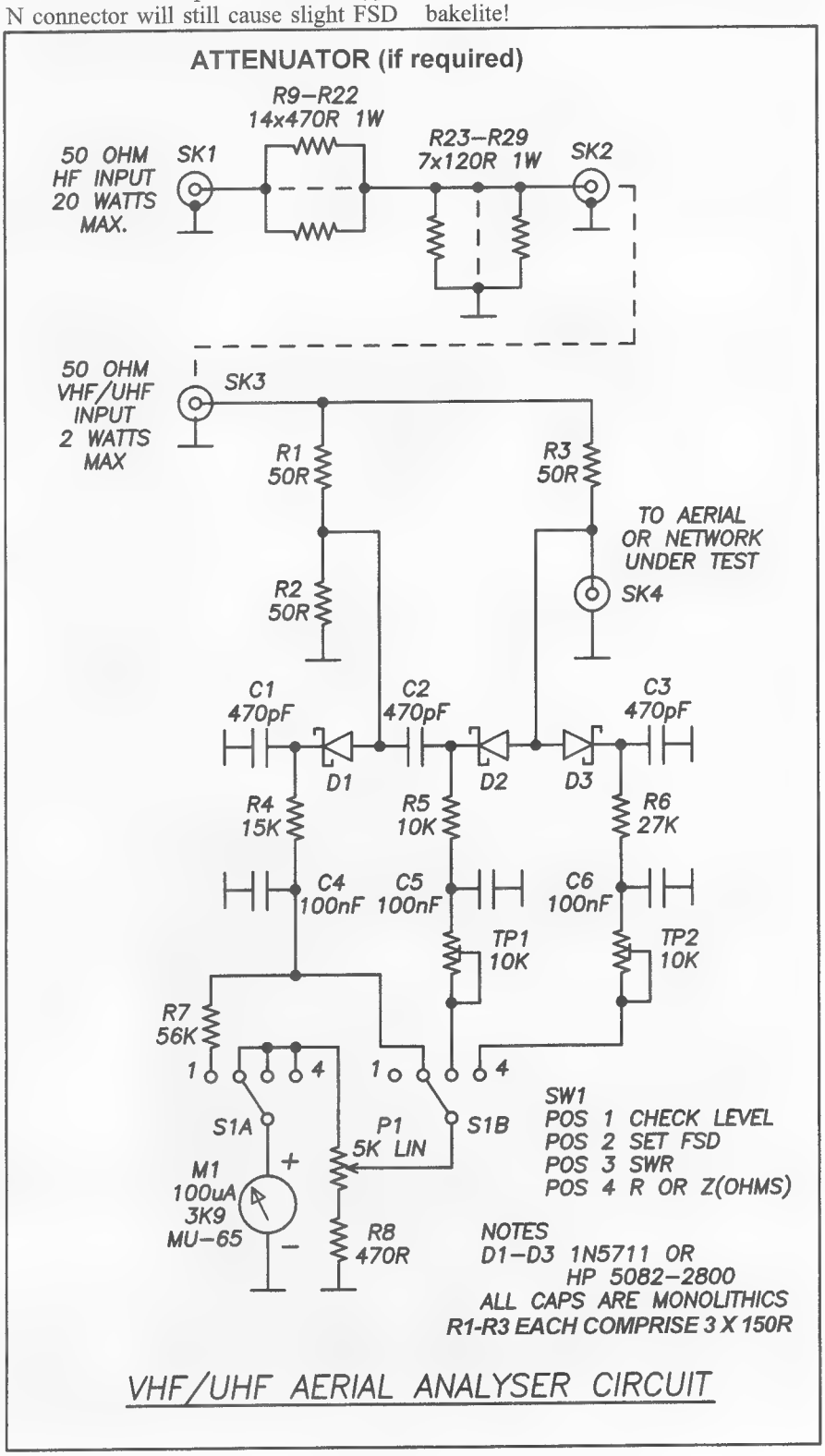


Fig 5 – Aerial analyser schematic.

The final part of the design is a power attenuator so that, for HF measurements, a standard HF transceiver at low power can be used as the signal source. Constructors may wish to omit this feature from the instrument if they have already built, or possess, an HF aerial analyser.

Construction

Make the PCBs first. The steam iron/clay paper method works well (see *www.users.on.net/~endsodds*). Artwork is included for the connector PCB (Figure 11), the Version 1 or 2 main PCB (Figure 12 or 13), and if required, for the attenuator connectors (Figure 10). Drill all holes and lightly solder-coat the PCB copper surfaces using a neutral paste flux and your soldering iron. Clean all surfaces with methylated spirits.

Complete all mechanical work on the case. In order to mount the PCBs, some of the case reinforcing ribs must be completely removed (a wood chisel is good for this). The front panel drilling details are given in Figure 7. Use the PCB (Figure 11) as a template to mark out the connector holes in the top of the case, and if the attenuator is included, mark out its connector holes in the side from the PCB defined in Figure 10.

Finish the PCBs. If you are using surface mount resistors in the bridge, mount them first. Very lightly coat the area where the resistors will be mounted with a neutral paste flux, and then hold the first resistor across its width with tweezers. Place it in position and lightly tack one end to the PCB using minimum solder. Repeat for all nine resistors. Firmly solder the other ends, allow to cool, and then re-solder the tacked ends using fresh solder. Remove all flux with methylated spirits and blow the PCB dry with hot air (hair dryers are great). Then, following the schematic (Figure 5) and the layout diagram (Figure 9) mount all other components. See, it wasn't really painful.

Solder the brass nuts to the connector PCB using steel screws to temporarily hold the nuts in final position. Mount all connectors, and then solder the connector and component boards together at right

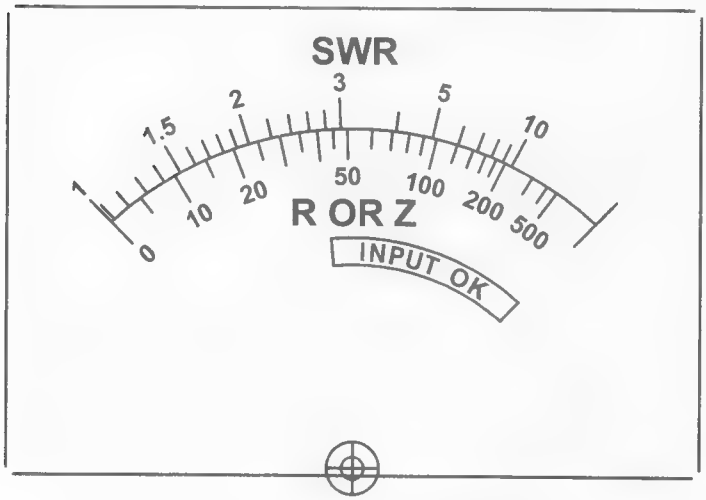


Fig 6 – Meter scale (exact size).

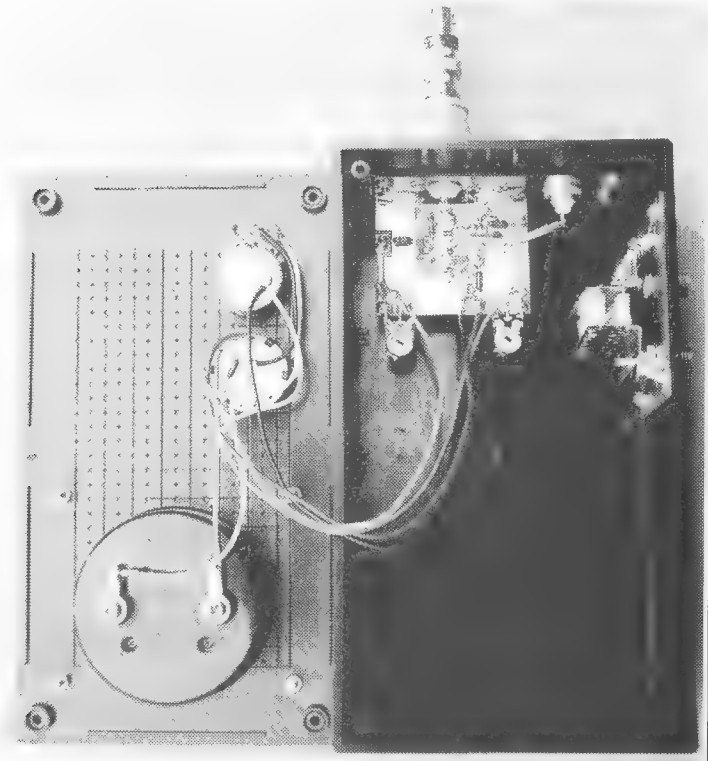


Photo 2 – Construction details with case open.

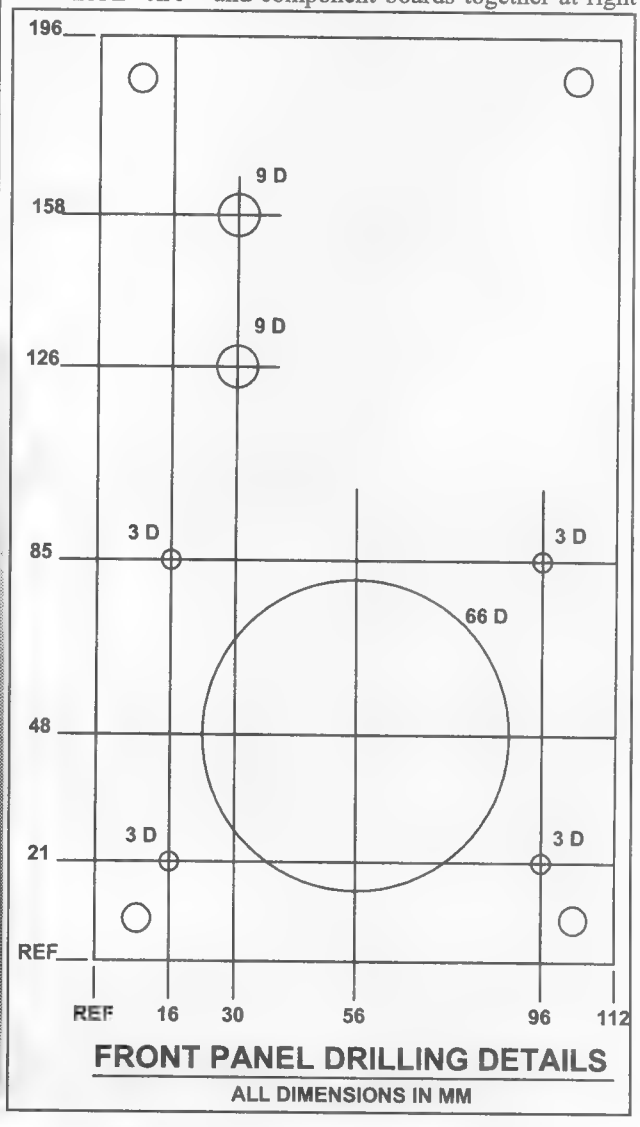


Fig 7 – Front panel drilling template.

angles. The completed assembly is shown in Figure 9. Use plenty of solder in the fillet. Make the final connection between the component board and input BNC connector using Teflon insulated miniature 50 Ω coaxial cable. If the HF attenuator is to be included in the instrument, assemble it as shown in Figure 10. Install everything in the case and complete all other wiring as per Figure 9 and Photo 2.

Then, modify the meter. In a very clean working environment remove the plastic faceplate and the screws which retain the metal scale. Turn the scale over and carefully cover the rear surface with thin double-sided adhesive tape. Photocopy the meter scale (Figure 6) onto heavy-weight glossy paper and carefully cut around its perimeter with a very sharp hobby knife. Stick this scale to the rear of the existing metal scale. Trim up with your hobby knife and reassemble the meter.

The final task is to install the front panel label which is provided in Figure 8. Follow the same procedures as for the meter scale.

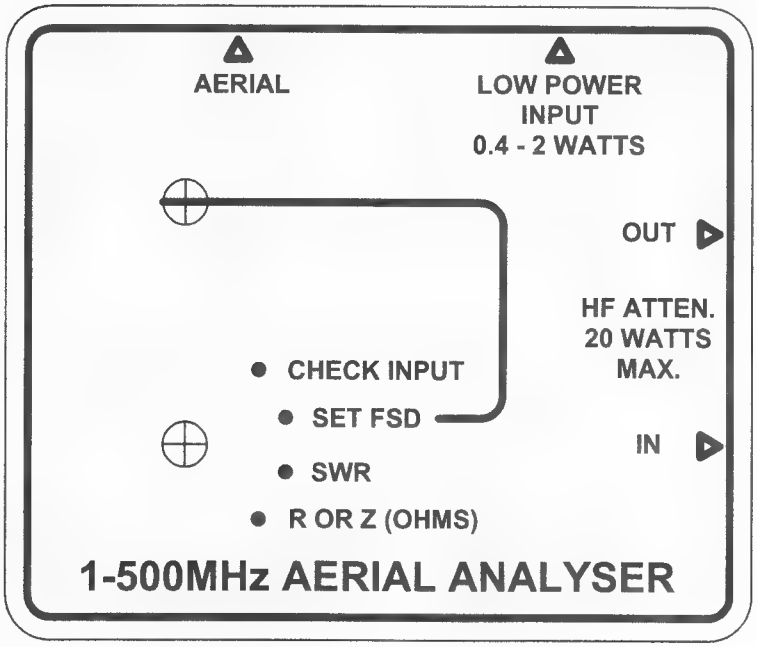


Fig 8 – Front panel label (exact size).

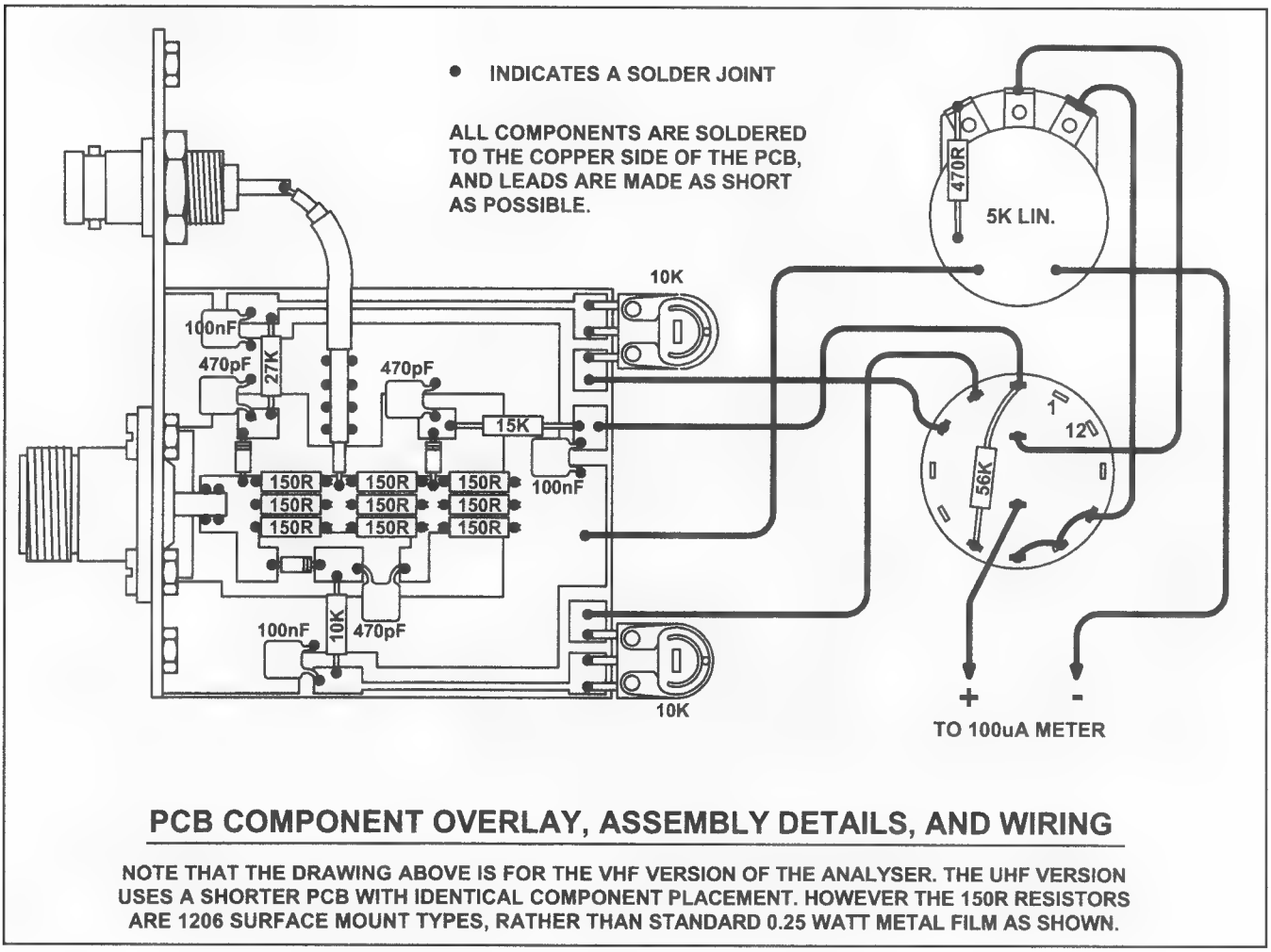

INDICATES A SOLDER JOINT
ALL COMPONENTS ARE SOLDERED TO THE COPPER SIDE OF THE PCB, AND LEADS ARE MADE AS SHORT AS POSSIBLE.
10K
100nF
470pF
27K
470pF
15K
150R
100nF
10K
100nF
470pF
10K
470R
5K LIN.
1
12
56K
+
-
TO 100uA METER
PCB COMPONENT OVERLAY, ASSEMBLY DETAILS, AND WIRING
NOTE THAT THE DRAWING ABOVE IS FOR THE VHF VERSION OF THE ANALYSER. THE UHF VERSION USES A SHORTER PCB WITH IDENTICAL COMPONENT PLACEMENT. HOWEVER THE 150R RESISTORS ARE 1206 SURFACE MOUNT TYPES, RATHER THAN STANDARD 0.25 WATT METAL FILM AS SHOWN.

Fig 9 – VHF version component layout and wiring.

Setting up

Switch the Analyser to its "CHECK INPUT" setting. Using a frequency in the 5-30 MHz range, gradually increase input to the analyser bridge to around the 1 W level (middle of the "INPUT OK" scale). Switch to "SET FSD" and, using the front panel potentiometer, carefully adjust for full-scale on the meter. Next, using the appropriate trimpot, adjust for full-scale deflection on both the "SWR" and "R or Z" switch positions. This completes all calibration. (The frequency of between 5 and 30 MHz is recommended simply so that the capacitive effects of the connector are negligible on the resistance scale - on the UHF version you can set up at 146 MHz).

If you have a really good 50 Ω dummy load, use it to check whether the instrument

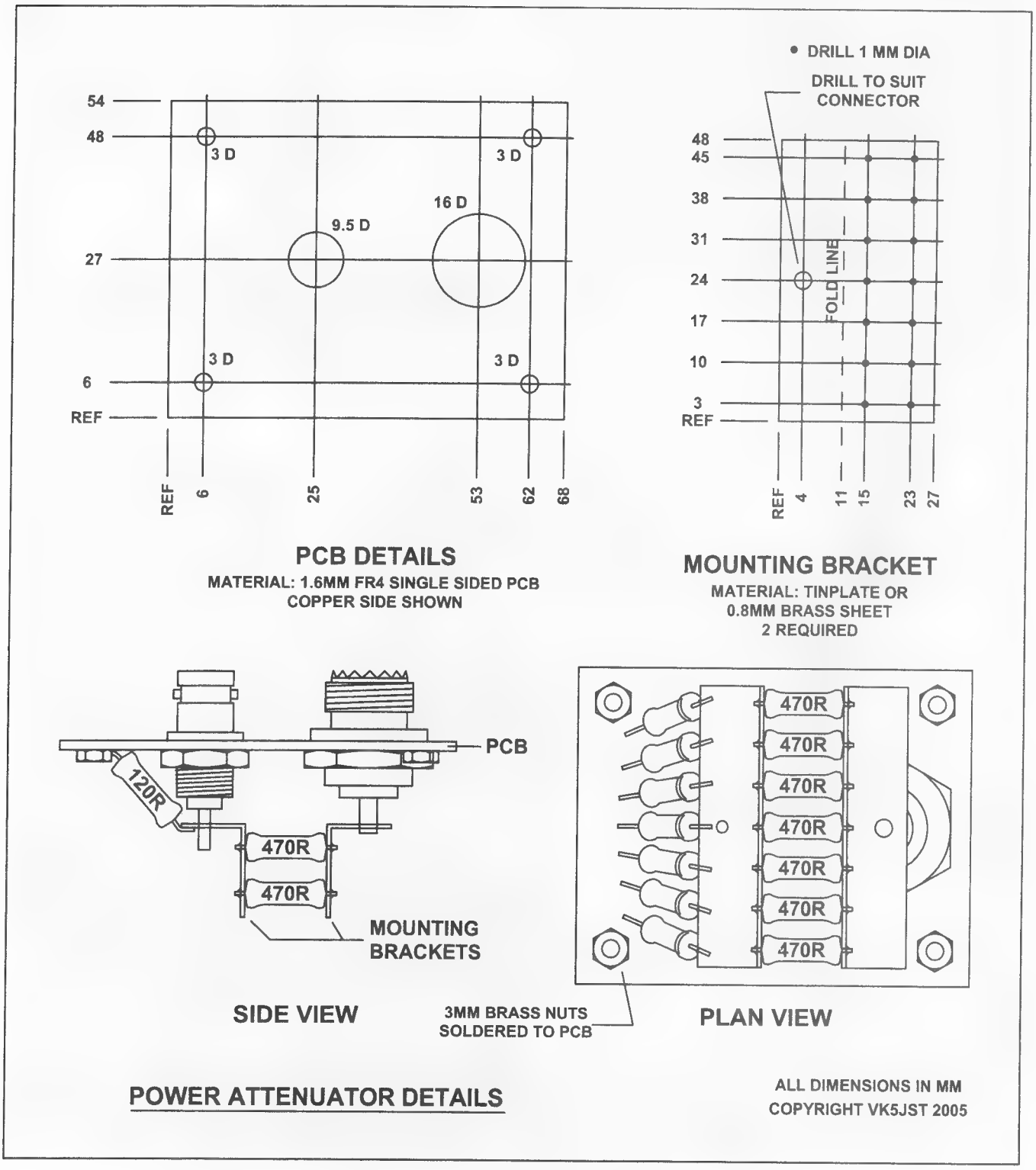


Fig 10 – Power attenuator details.

indicates an SWR of 1 and a resistance of 50 Ω over the frequency range quoted for your load. Unfortunately, many dummy loads fail this test miserably and a good dummy load which operates correctly at VHF or UHF (SWR less than 1.05) is very difficult to make. The Analyser design was carefully tested using a borrowed precision 50 Ω load at both 2 metres and 70 cm (thanks VK5ZBQ). With the surface-mount resistor bridge, an SWR of 1.05 was measured at 470 MHz. Version 1, using standard quarter watt metal film resistors in the bridge, gave an SWR reading of 1.3 at 470 MHz and 1.03 at 146 MHz. It also incorrectly indicated the resistance as 70 Ω at 470 MHz.

Using the analyser

Select a test frequency on your handheld (see Photo 1) and adjust the power output for around 1 W (or use the inbuilt attenuator to produce 0.4 - 2 W into the test circuit from your HF rig). Switch to "SET FSD", adjust for full scale, and then check "SWR". Check the apparent impedance (Z) on the R or Z scale. Now switch your radio to a slightly higher frequency, recalibrate the instrument and note changes to SWR and impedance. If the impedance fell on the second test the aerial is too short and needs extending. If the impedance rose then you are measuring above the aerial's resonant frequency and it needs to be shortened. Note that the frequency change should be kept relatively small (1 - 2%). It is very easy to completely miss the aerial resonance with a big frequency change (say from F2 to F3 in Figure 4) and fool yourself. This is particularly so on multi-element Yagis with small element diameters, as the bandwidth can be very narrow.

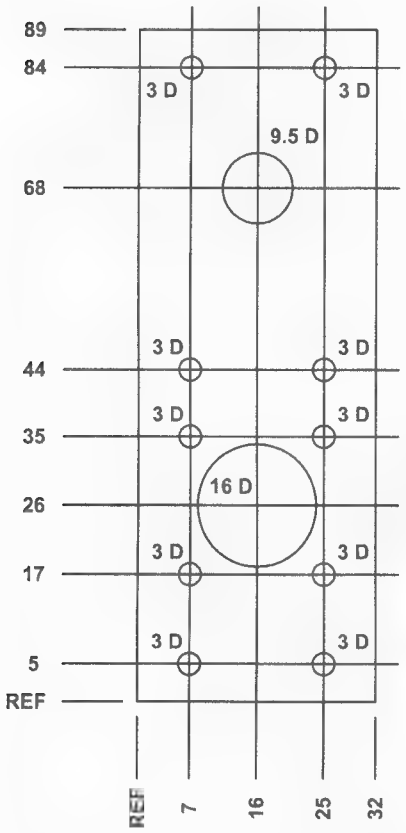
Once you know where you are relative to resonance, you can work out whether to lengthen or shorten, add inductance or capacitance, adjust the matching network for a better match, use a different feed line or balun, or take any one of thousands of possible actions including hurling the antenna over the nearest fence. And in the process you will end up really learning something about the mystical subject of aerials.

Enjoy!

ar

Parts List

9	150 Ω 0.25 watt metal film OR
9	150 Ω 0.25 watt type 1206 SM
7	120 Ω 1 watt metal film
1	470 Ω 0.25 watt metal film
14	470 Ω 1 watt metal film
1	10 kΩ 0.25 watt metal film
1	15 kΩ 0.25 watt metal film
1	27 kΩ 0.25 watt metal film
1	56 kΩ 0.25 watt metal film
2	10 kΩ trimpots Jaycar RT4016
1	5 kΩ linear pot
3	470 pF 50 V NPO monolithic capacitors
3	100 nF 50 V monolithic capacitors
3	1N5711 (HP 5082-2800) Schottky diodes DSE Z3231
2	BNC connectors Altronics P0516
1	SO239 connector Altronics P0510
1	N type connector DSE P2410
3	printed circuit boards- see text
1	2 pole 6 position rotary switch Jaycar SR1212
2	knobs
1	100 µA meter type MU-65 Altronics Q0550
1	Jiffy box 197 x 113 x 63mm Jaycar HB6012
14	3 mm brass nuts
14	3 mm countersunk screws



CONNECTOR PCB DETAILS

MATERIAL: 1.6MM FR4
SINGLE SIDED PCB
ALL DIMMENSIONS IN MM

Fig 11 – Connector PCB details.

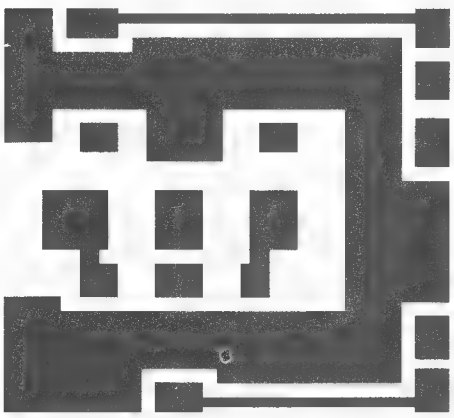


Fig 12 – VHF board template.

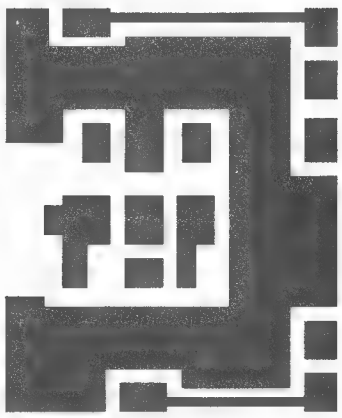


Fig 13 – UHF board template.

Not QTHR in the 2006 Callbook? You need to check and amend your details with ACMA now.

President's Report — continued

paper, as well as the shortcomings of the existing examination system led the Board to a total revision of the WIA's approach to the assessment of amateur qualification.

Let me review the events that have led to the system we have now established.

In the December 2004 edition of 'Amateur Radio' I raised the idea of a new examination system based on the assessment competency by assessors holding a nationally recognised qualifications based on the Australian Qualifications Framework, with WIA Assessors formally trained by a Registered Training Organisation (RTO), and accredited and registered by the WIA.

By April 2005 I was able to report that from my meetings with many clubs I was satisfied there was real support for such a system, and so the planning continued. Ultimately, in June 2005 we were successful in finding a formula of words that satisfied us that ACMA would recognise the proposed qualification for issuing certificates of proficiency and satisfied ACMA that they would not be embarrassed in the context of a possible tender for the further outsourcing of the amateur examination function. In August and September 2005 assessor training courses were conducted in Brisbane, Sydney, Melbourne and Adelaide by the WIA's RTO.

The WIA must be satisfied that a WIA Assessor is a fit and proper person to be accredited and registered and so a police clearance is required, mandatory in a number of states for persons responsible for young people. Because we take some responsibility for the Assessors, and because we wish them to be covered as WIA members by the WIA QBE Public Liability policy, we insist on Assessors being WIA members and because we believe the assessors should be supported by a club, ordinarily we insist that an Assessor be nominated by a club.

Today there are some 93 accredited and registered WIA Assessors, and some 15 Nominated Assessors, from right across Australia.

Currently, some 50 further potential assessors have just been trained or are awaiting training at assessor training courses to be conducted in Melbourne, Sydney, the Gold Coast and Townsville.

By the time the first assessor training course was conducted an Assessment Instructions manual had been prepared, and the training courses identified many of the deficiencies that could be corrected by the time the first Foundation courses were being conducted.

As well, the extremely well received Foundation Licence Manual written by Ron Bertrand and Phil Wait was being completed and printed. All the material needed by a Foundation licence candidate was available in one attractive package.

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FT-7800R Dualband	$449	FT-817ND HF-70cm Port.	$1099
FT- 8900R Quadband	$799	VX- 1R H/held 2 batts	$249
FT- 8800R Dualband	$699	VX- 2R Tiny Dualband	$319
FT- 897D HF-70cm	$1,399	VX- 170 2m H/held	$269
FT-857D HF-70cm	$1,299	VX- 6R Dual H/H	$469
FT- 2800M 2m 65W	$299	VX- 7R Deluxe H/H	$549

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On the weekend before the actual Amending Determination to create the Foundation, Standard and Advanced licences came into effect on 19 October 2005, the first Foundation training course and assessments took place at the Gold Coast Amateur Radio Society with 16 candidates determined to be competent. Their WIA qualification was recognised by ACMA and so a week later the first Foundation licences were issued.

Let us not underestimate the load this has imposed on the WIA.

Since the start of October 2005, the WIA office has prepared some 1,100 Foundation Assessment Packs.

Of those Packs, 589 have been returned.

In order to minimise the delay in the issue of a licence the WIA will process the candidates' applications for certificates of proficiency and apparatus licence applications if candidates wish and provide the necessary forms and payment. By 28 April 2006, 426 candidates had taken advantage of this service.

Certification of results has been sent direct to 163 Foundation candidates, for them to forward to ACMA.

As at 2 May 2006, in some 6 months since the category of licence was created, ACMA has now issued 502 Foundation licences.

So, we have in a few months celebrated the first Foundation licence, and now the 500th Foundation licence. By an extraordinary coincidence, both the first and the 500th come from southern Queensland.

And, by a further extraordinary coincidence, the 500th Foundation licensee is John William Owen VK4FRUM. What a great name!

The distribution by state/territory is interesting:

VK1 20	VK2 138
VK3 161	VK4 57
VK5 63	VK6 24
VK7 38	VK8 1

In the same period, 18 candidates have qualified for the Standard licence and 6 have qualified for the Advanced licence.

Standard/Advanced Regulations and Standard and Advanced Theory Packs are now available, and the 3rd Revision of the Assessment Instructions has been produced and circulated, to take into account the new packs, and to provide greater simplicity.

Now, some 37 clubs in all states offer Foundation licence training courses and assessments, and clubs from Hobart to Cairns and Darwin, and from Perth to Sydney and Melbourne have through their Assessors the ability to qualify all 3 grades of amateur licence.

As I look back over the past 12 months, I can say that a great deal has been achieved. We have a completely new assessment system, able to cope with the need for practical assessments, and we are able to provide immediate guidance and feed back to candidates. We have shown the ability to attract and qualify new entrants to amateur radio.

Since the start of October 2005, the WIA office has prepared some 1,100 Foundation Assessment Packs.

Of those Packs, 589 have been returned.

As at 2 May 2006, in some 6 months since the category of licence was created, ACMA has now issued 502 Foundation licences.

And I suggest that the number of new amateurs in the last 6 months demonstrates the value of all this effort.

This has been achieved through the efforts of very many people, each working within their own area of skills, but working together to achieve a result.

I cannot mention everyone who has contributed to what has been achieved but let me mention some:

Fred Swainston VK3DAC, of Train Safe, the WIA's nominated RTO who has spent so many hours and days training and qualifying Assessors, keeping records, advising generally and in particular in relation to the Instructions, and helping define solutions to so many new issues;

Ron Bertrand, who not only wrote the Foundation Licence Manual with Phil Wait, but with others represented the WIA in the formulation of the new syllabi, (and did most of the work) and also prepared the basic question banks;

Robert Broomhead, who produced the photographs for the Foundation Licence

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President's Report

Manual and managed its production, and also is developing the software to produce the Assessment Packs and manage the whole assessment process and create the records that we need;

Of course, the many people from so many clubs who have supported the change, and particularly all those who have given up a whole weekend for training, sometimes travelling quite some distances and who have, since then, given up further weekends to assist at Foundation courses;

Alan Jordan of ACMA for his invaluable advice and guidance, and Margaret Wattam of ACMA, who has helped us in streamlining the forwarding of certificate and licence applications;

Emma Trebilco, Brenda Edmonds and more recently Margaret Webb, who have provided the office support, the packs and the administration;

And finally, the man who has made it his mission to make it all work, and to organise the Assessor Training courses, the man who lives on the phone, our secretary Chris Jones VK2ZDD.

4. Board

In accordance with the Constitution adopted on 16 May 2004, 3 directors stood down and offered themselves for re-election.

Nominations were called for and as there were 4 candidates for 3 positions, an election was conducted in accordance with the regulations for the conduct of a postal ballot that had been adopted by the Board.

David Wardlaw, VK3ADW was appointed Returning Officer by the Board, and as announced formally at the Annual General Meeting, the result of the ballot was:

Trevor Quick VK5ATQ, 715 votes, elected

Robyn Clare Edwards VK6XRE, 694 votes, elected

Philip John Wait VK2DKN, 694 votes, elected, and

Edward (Ted) Thrift VK2ARA, 477 votes.

I think we can all be immensely proud that some 960 odd members voted. That is nearly one in 4 members, and says a great deal about how the WIA has changed to a single national entity, with all members having an equal say.

Ted Thrift has contributed much to the WIA during his term as a director. He has taken special responsibility for the WIA's publications, attending virtually all Publications Committee meetings by phone, and has been very much involved in the Call Book.

Ted took a special responsibility for the clubs, and elsewhere I report on the problems we have experienced in the office. When it became apparent that the office would not be able to cope with handling the club's insurance renewals, Ted took on that task – not merely a matter of sending a reminder, but chasing down all the clubs that did not respond, which meant finding the person who was responsible this year for that matter.

The Board is very grateful to Ted, and took the view that to lose his special knowledge and enthusiasm would be a terrible mistake, and so the Board has created the role of National Club Coordinator, and appointed Ted to that position. So, that way, we do not say farewell to Ted.

But we do say welcome to Robyn Edwards VK6XRE. The Board of the WIA succeeds simply because each of the directors contributes his or her special skills to look after particular areas or projects. I am sure that Robyn is going to work very hard for us, too.

As reported in our formal report submitted to the Annual General Meeting, during the calendar year one meeting of Directors was held, and since then a further meeting was held in February. Following the meetings today, a Board meeting will be held tomorrow, Sunday.

Also, as reported formally, the directors communicated regularly by email and phone and during the year all directors signed 98 Resolutions pursuant to clause 18.10 of the Constitution.

These Resolutions dealt with the admission of new members (46), the affiliation of clubs (36), and the balance (16 resolutions) dealt with banking, the approval of the reimbursement of directors' expenses, the adoption of a 5-year subscription, the appointment of an Assistant Treasurer, the transfer and subsequent sale of the property at Humpty Doo in the Northern Territory, the appointment of QSL and Repeater coordinators, the adoption of postal election regulations, various matters relating to the adoption of a new amateur competency assessment system and the accreditation of assessors.

5. Office

At the last Open Forum I reported that June Fox would retire in a few weeks, and from 2 May 2005 Ms Judith Oliver worked with us to replace June.

Emma Trebilco continued to work on a part time basis for the WIA, providing a much needed continuity and knowledge. However, toward the end of last year she decreased her working hours, as she wished to increase her time with another employer who she believes offers her better opportunities than the WIA.

Emma has been extremely loyal to the WIA, working at weekends and at nights when our situation has been desperate, and she has continued to work 3 days a week when she can, training new staff and generally assisting us.

Except for about 3 days in January, Ms Oliver has been unable to work since 20 December 2005 because of a medical condition.

In this very difficult period, since about November last, we have taken a number of steps to overcome our problems.

John Weir, VK3ZRV has accepted the job of dealing with the orders for the Call Book and the Foundation Licence Manual, from recording payments to packing and dispatching the books.

Brenda Edmonds has worked in the office up to 3 days a week, rather than the one she ordinarily gives to assist us.

For many weeks we relied on the answering machine to record questions, so that they could be referred to someone out of the office to answer questions, usually Chris Jones.

A great many entries in the WIA's accounting software were wrong, and virtually none were made during the last 3 months of the 2005 financial year. Bruce Bathols spent very many hours putting the accounting records into order prior to the audit.

The result of all of this is, particularly from October last and the first 3 months of this year, the WIA has not delivered the services to its members and others at the standard to which we had aspired.

Membership applications were not processed as promptly as we had wished,

President's Report

inquires were ignored, changes of address were not recorded, AR non-deliveries were not adequately followed up, and many inquiries were left unanswered.

All I can say is that the Board is very conscious of these problems, has been constrained in what it can do by reason of the legal obligations imposed on it in these circumstances, and can only apologise to our members and assure you that we are doing our best to overcome these problems as quickly as we can, subject to the constraints of a limited budget and our obligations set by law.

In recent weeks, Margaret Webb has joined the staff at the national office.

6. Office Equipment/ systems

During the period under review the accounting software was changed from QuickBooks to MYOB, the first 3 months of the last financial year being the old software, since then the MYOB.

During the year, Access based membership management software was developed, to replace the very old software.

A consultant was retained, and worked closely with the director responsible, Robert Broomhead.

While the transition caused a delay in the issuing of renewal notices last June, and has taken some time to debug, the new system is now working very well.

Currently Robert is creating yet another system, this time to manage the examinations, creating the various Assessment Packs, generating the various documents and maintaining records.

In May/June last year, new furniture was acquired for the office, and a new second hand photocopier, printer, fax was acquired. At the same time, WIA Vice President, Ewan McLeod spent time in the office sorting old documents, books and magazines, throwing out what should be thrown out, and removing to storage what was needed, all to give us some more space in what is essentially a very overcrowded office.

7. Clubs

Once again, I remind you of the importance the WIA and its Board has placed on clubs. Our whole approach to the training and assessment of amateurs relies on the support of the clubs. It can be no other way. The number of WIA Assessors, and the number still seeking training, the number of clubs conducting courses, is the clearest evidence that this partnership is successful.

While Ted Thrift reports separately on clubs, in this report I record that there are now over 100 affiliated clubs of the WIA. That is heartening.

One of the concerns with the restructuring of the WIA was the possible effect on the availability of public liability insurance for the clubs. The WIA promised, in effect, to do its best to meet that need.

Ultimately the QBE Broadform policy was chosen, but with endorsements that made it clear that both the WIA and the insured clubs were insured, and also their members were insured as set out in the policy. Certain volunteers were also covered. And because the WIA premium is calculated on the number of members, the clubs do not pay premium on their members who are also WIA members.

I believe the insurance does represent a real service provided by the WIA for the clubs.

During the period I have continued to visit as many clubs as possible.

In October 2005 I attended a meeting of representatives of some 13 clubs in Brisbane, then in early November I visited clubs in Northern Tasmania and in Hobart. Later in November I attended a joint WIA/ARNSW club conference held in Sydney. At all of these meetings the role of the clubs in attracting new amateurs, training them and finding and then supporting the Assessors to qualify the new amateurs was the major matter for discussion.

I must say that I have found the support for the WIA's efforts to increase the number of amateurs through the Foundation licence very heartening.

The only thing that concerns me is that I wonder at times whether each club is really doing its best to promote membership of the WIA to its members. That is another and important aspect of our partnership with the clubs.

As I said last year, unashamedly, we are asking the clubs for their support and for them to work with us to encourage more members, and to make sure that their members are also members of the WIA.

8. Club Grant Scheme

The Board initially allocated $1,500 to fund a small number of grants to qualifying Affiliated Clubs this year, and has now increased the amount to $5,000.

The Clubs Grant Scheme is based on the previous Queensland model, where clubs were invited to make submissions for assistance for particular projects.

Details were on the WIA website a few days ago and will be also available at the Open Forum.

9. Gifts

Henry Andersson, VK8HA, who had become a member of the national body as soon as he could, and who died in Darwin in October 2004, left the WIA his house and land at Humpty Doo.

As announced last year, the Board decided to sell the property and I was able to visit Darwin, meet the Trustee's officers, appoint solicitors and estate agents and ultimately the WIA received $252,722.42 after meeting all expenses.

The Board has yet to determine how best to establish a lasting memorial to Henry Anderssons' memory and generosity.

In October 2005 I accepted on behalf of the WIA a cheque for $10,000 from one of the 'greats' of Australian amateur radio, Al Shawsmith VK4SS who indicated his wish that the money would be used for educational purposes or in support of WIA educational activities.

10. Publications

Ted Thrift has continued to take special responsibility for publications and we have both continued to attend as many Publications Committee meetings as possible, Ted by telephone.

With the final edition of AR for 2005, Colwyn Low VK5UE finally got his wish and retired.

We acknowledge with gratitude Colwyn's great contribution to the WIA as Editor, and on a personal note, I thank him sincerely for staying on at my request for as long as he did.

We are delighted that Peter Freeman VK3KAI, of GippsTech fame, has become editor.

To our entire Publications group, on behalf of us all, I say a very sincere thank you for all you do.

President's Report

11. Broadcasts

The Q-News team, led by Graham Kemp VK4BB, has continued their fantastic job of producing the VK1WIA weekly broadcasts.

To everyone who contributes, thank you.

12. WIA Website

The WIA website continues to be the primary location of new information, and with as much other information as possible being found there.

We continue to seek to make it a little more user friendly.

During the period since our last report, ownership of the ISP providing our server changed, and we acknowledge with gratitude the support that we have continued to receive from Vintek Pty Ltd of Adelaide.

Our thanks to Colin Thompson VK2TRC and director Robert Broomhead VK3KRB for their work with the website over the period.

13. Intruder Watch

In various roles over quite a few years I have been able to observe the Intruder Watch activity.

I happen to believe that it is very important, even though victories may be few and far between. It is one of those activities where we will never be able to measure accurately its worth, simply because we will never know how many potential intruders have been deterred by the knowledge that the amateur service, nationally and internationally, will complain.

Last year we reported that Glenn Dunstan was taking responsibility "for the time being". I believe that we should be very grateful that Glenn has continued his career as an Intruder Watcher!

14. ITU Matters

As David Wardlaw reports, WRC 07 is scheduled for October/November next year.

Two agenda items directly concern the amateur service. One is the review of the allocations to all services between 4 MHz and 10 MHz, excluding 7000 to 7200 kHz, and the other is the proposal to allocate 135.7 to 137.8 kHz to the amateur service on a secondary basis. Other items could also have an impact on us.

The WIA continues to participate in Australia's WRC preparation and as a member of Study Group 8.

May I particularly thank Keith Malcolm VK1ZKM and David Wardlaw VK3ADW for their work in this area, and Keith, also, for his ever willing assistance on so many matters, particularly when we want yet another submission prepared.

15. Marketing, Image

Last year I referred to the adoption of new, more relevant and more appropriate imagery to promote amateur radio and the WIA.

The posters that had only just been produced last year have continued to be used around Australia at various club functions and continue to attract favourable comment.

The Foundation Licence Manual has also attracted much favourable comment in providing a younger more relevant image.

16. Membership

Under this heading I repeat some information from the statutory report accompanying the financial statements presented to the Annual General Meeting.

In the Open Forum Report last year I reported, after making adjustments that were intended to allow for the distortion caused by the Provisional Members, that the total membership was 3494, virtually the same number as the previous year. In the statutory Report we said there were 3851 members on 31 December 2005. As at today there are 3870 members.

In the Open Forum Report last year I reported,... that the total membership was 3494, virtually the same number as the previous year. ...

As at today there are 3870 members.

While the true numbers were hard to measure last year, we can have confidence in the current numbers, so whilst last year we were able to say that at least the decline in membership had been stopped, we can now say that the membership is growing.

Last year I reported that in the period from 16 May 2004 to May 2005, 323 people joined or rejoined the WIA. In the period from 1 July 2005 to now, 361 people have either joined or rejoined the WIA.

As stated in the statutory report, the 5-year membership has been very successful, with today some 317 members having taken up that option.

In the period since 1 July 2005, we have been advised of (and recorded) the passing of 27 members. Obviously, the real number is much higher, as we are only advised of a certain number.

The challenge remains to attract new members. I advert to that in the context of the clubs. But in the present context I should tell you that ACMA has recently agreed to the WIA including WIA promotional material in letters confirming a successful outcome for examination/assessment candidates and we certainly now intend to do that, also including a copy of AR.

Our target must particularly be the Foundation licensees.

17. IARU Region 3

With the death of Peter Naish the WIA lost a valuable source of advice about Region 3. Peter was a director, and while as such he did not represent the WIA, rather was bound to act for all members (in the same way as the WIA directors act for all members and do not represent any particular group of members), Peter was able to ensure that the Board did understand Region 3 matters.

The WIA is a founding member of IARU Region 3. Region 3 is important to the WIA for a number of reasons:

One is that our representative and coordinator at the ITU, ultimately the body that allocates spectrum to the various services including the amateur service, is the IARU, and Region 3 is our means of input to the IARU, and our representative at a regional level, particularly to the APT.

Another reason is that nearly one dollar of every member's subscription goes to Region 3 as the WIA's subscription, and in addition the WIA must meet the cost of participating in the Regional Conference every three years.

The WIA must participate effectively and the regional organisation must also

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be effective to justify this significant expenditure.

The next Regional Conference is to be held in Bangalore, India from 7 to 11 August this year. The host society is The Amateur Radio Society of India (ARSI).

The Board reviewed the WIA's participation in Region 3 at its last meeting, and will further review our position at our meeting on the day following the AGM.

The WIA has considered the most constructive suggestions advanced by SARTS for improvement to the Region 3 Constitution, and tends to agree with their basic concerns, though we would be concerned if such issues ended up dominating the activities of the Region during this critical period immediately before a WRC that does have potential impact on the amateur service.

At the 2005 IARU Region 3 Directors meeting held in Bangalore in October 2005, Jim Linton VK3PC, nominated by the WIA was appointed temporary Chairman of the IARU Region 3 Disaster Communications Committee. Jim's term of office will be until the Bangalore Conference.

I believe that is an important position, for while Jim may face inertia from some member societies, as I say in a different context, with the changes to Article 25 made by WRC 03, the capacity of the amateur service to engage in effective international emergency communications is important.

18. Advisory Committees

The WIA Constitution requires Advisory Committees, initially the Divisional Councillors of the former Divisions, after 3 years elected, to advise the Board.

The fact that early next year is the first elections for members of the Advisory Committees will force the Board to formulate the regulations for that to occur.

That is our next task.

19. QSL Service

In July 2005 the Board appointed Neil Penfold VK6NE as National QSL Bureau Coordinator to manage and promote this important service for members.

Members and bureau managers are encouraged to contact Neil if they need assistance in relation to any aspect of the QSL service.

20. QSL Curator

Once again I record that Ken Matchett VK3TL continues to collect the most interesting and most important QSL cards.

He has provided a separate report to the Open Forum, and you will see his concern as to where, in the future, the WIA will be able to store this valuable Collection.

21 History

The previous WIA Historian John Edmonds has continued to look after a significant volume of historical material.

To the delight of the Board, Will McGhie VK6UU has accepted the position of WIA Historian, and is currently engaged in scanning old ARs. This will preserve our history and hopefully provide CDs that members will be happy to purchase.

22. Contests

Trevor Quick is the director who takes primary responsibility for Contests and Awards.

The national Contests Co-ordinator is Ian Godsil VK3JS.

Contests are an important aspect of the WIA's activities, and it is pleasing to note that they continue to attract attention.

The Board relies heavily on the expertise of the dedicated team who manage the various contests and we thank them for their efforts.

23. Awards

Malcolm Johnson VK6LC is the national Awards Co-ordinator, and has spent much time updating the WIA awards to reflect the new structure, and enhance the WIA awards as described in his report.

We thank Malcolm for his enthusiastic support.

24. Emergency communications

There are separate WICEN organisations in each state, not necessarily associated with the WIA other than (usually) as an affiliated club.

The Board is very aware of the importance of international emergency communication since the changes to Article 25 at WRC 03, but is very unsure

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of the role, if any, of the WIA.

Accordingly Ewan McLeod has been given the task of providing the Board with a report, setting out the current position and addressing all the associated issues, including, for example, general emergency capabilities by amateurs generally outside the WICEN structure.

The Board, when properly advised, will develop a policy in relation to this general area.

Following a request from the WIA, ACMA has allocated the WIA two 5 MHz HF land mobile channels for WICEN use.

The 5 MHz channels will provide significant enhancement of WICEN capabilities. They will bridge the frequency gap between the 80 and 40 meter bands, and allow the use of Near Vertical Incidence Skywave (NVIS) propagation to provide coverage into areas outside of VHF range.

Because these channels are part of the commercial land mobile service, the use of amateur transceivers and callsigns is not allowed. Only ACMA type approved land mobile equipment may be used.

ACMA has also agreed to waive the licence fees for these channels on the basis of WICEN use.

25. Some other matters

There are some matters that should be included in this report for the sake of completeness, and I mention them very briefly as follows:

ACMA matters

Apart from the matters already mentioned, the WIA has been in regular communication with ACMA on many matters, including the clarification of when a practical assessment is required. The WIA was able to advise its members that amateur qualifications obtained before the new licensing arrangements came into force in October 2005 would continue to be fully recognised, so that persons holding an AOCP or AOLCP will be granted an Advanced Licence without having to undergo a practical assessment. Similarly, persons holding an NAOCP or NLAOCP will be granted a Standard Licence without having to undergo a practical assessment. However, this is being applied very strictly, so it seems that being qualified without having the certificate of proficiency is not enough.

When the new Foundation licence came into effect on 19 October 2005, the WIA was surprised that a power limit of 3 watts for AM, FM and CW had been imposed, believing that limit to be unrealistic given the output power of commercially available equipment, particularly older equipment, and that the power limit should be 10 watts. Subsequently ACMA advised that the Foundation licence would be permitted a transmitter output power of 10 Watts pX on all permitted emission modes instead of the present 10 Watts pX for J3E emissions and 3 Watts pY for all other permitted emissions.

The WIA was consulted by ACMA on the possible use of handheld transceivers in the 70 cm band during the Commonwealth Games.

Bookshop

The WIA Bookshop commenced operation last September.

As is reported in the Manager's separate report, AR advertising has been effective. The WIA will be seeking to make the online Bookshop much more user friendly and attractive.

Callbook

The Callbook was the result, again, of the work of Brenda Edmonds and Ted Thrift, our editors.

Publication was delayed from late September until November so that the new licence conditions announced in mid October could be included.

The number printed was increased over last year, and despite the delayed publication, sales have been good and only 400 remain.

A number of people have complained about incorrect listings. The information comes from ACMA and the WIA is not permitted to change it. Any changes to callsign, name or address MUST be done by the Licensee advising ACMA, and in time for the change to be in the listings published by the WIA.

Once again, I acknowledge the contribution of John Martin as well as Brenda Edmonds and Ted Thrift.

26. Conclusion

As I look back on the period since 1 January last year, I believe that the WIA has faced a period of great change, great pressure and great opportunity.

We have had our bad times – the loss of June Fox, the illness over a long period of her replacement, the onerous obligations imposed on employers in Victoria under our Workers Compensation legislation, the incredible pressure placed on our administration by the coincidence of a totally new examination system, the management of training of the assessors, the development and introduction of new membership management software and the introduction of new methods in so many things that haven't worked as easily as we hoped the first time.

But I firmly believe that we have moved further and faster, in response to all the challenges we have faced than would have been even possible under our previous decision making structure.

But I also believe this: what we have achieved has been due to the incredible commitment of a group of people with synergistic skills and a determination to succeed, supported by the incredible work of volunteers prepared to support us.

No organisation like the WIA can ever just stand still. It will either move forward or go backwards.

But this can only last for so long. For members in most states the national WIA has meant lower subscriptions. The time for confusion as to what is the WIA, is it still a state body, or something else, has surely passed.

The WIA is an organisation having many complex obligations, and like amateur radio itself, covers many areas of interest.

No organisation like the WIA can ever just stand still. It will either move forward or go backwards.

To continue moving forward the WIA must, in the near future, put itself in the position where it can employ a qualified and competent manager. The hours that some of us put in are, frankly, silly, particularly those trying to earn a living or manage a business at the same time. That is why we need a manager, because

we can only ask so much for so long of volunteers.

How do we put ourselves in that position?

By either increasing membership fees or increasing the number of members, or some mixture of both.

That is the future.

We can look to the future because I believe that the year past has demonstrated what a truly national amateur representative and service organisation can do for our great common interest.

27 *A personal note*

Thus far, this report is written for all of the Board, all of whom have seen and agreed with it.

Let me add this personal note.

During the period I report to you I have visited many clubs and met many amateurs. I believe that the WIA must be open and honest, and so members and potential members should see and hear those who represent them. I simply wish to thank so many of you for your hospitality and courtesy.

This report is a story that I believe is positive, a story of great change, and some real difficulty.

Under the previous heading I address the issue of time and commitment.

Let me now say how much I value the work of so many, and particularly our Board. The directors do not all agree on everything nor should they. But each makes their own contribution, and many give very many hours to the WIA undertaking tasks that are not the usual roles of directors.

To each of you, Ewan, Robert, Trevor, Glenn, Ted and Phil, I acknowledge your work, your commitment and your genuine value.

Bruce, I acknowledge your special contribution as Treasurer, and all you have done to get our financial reporting and controls in place.

Finally, to our secretary, Chris Jones, and I am sure on behalf of all of us, what you have done to make this organisation, and particularly the assessment system and the new licences, particularly the Foundation licence work is breathtaking. Without you I suspect we would not have moved very far.

I have stressed how much all of us have devoted to our roles. For myself, this has meant that at times I have left unanswered the letter that I should have answered, the email I should have responded to not responded to, and things not done that should have been done. I simply apologise and seek your understanding.

ar

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ABN: 87404541761

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Specifications

Antenna	TEV-4	TEV-3	TEV-3 Warc
FREQUENCY	7, 14, 21, 28 MHz	14, 21, 28 MHz	10, 18, 24 MHz
ELEMENT HEIGHT	4090 mm	3800 mm	5025 mm
FEED IMPEDANCE	50 OHM	50 OHM	50 OHM
MAx. RADIAL LENGTH	10.7 Meters	5 Meters	7.5 Meters
SWR	1.5 or less	1.5 or less	1.5 or less

Some different ideas on the EH antenna

Lloyd Butler VK5BR

A lot of theory has been written about the EH Antenna and its operation in a Crossed Field mode. However, here are some measurements and test details which support some different ideas of how and why the antenna is able to perform.

Introduction - Background of Theories Concerning the EH Antenna

The EH Antenna was introduced as a small dipole making use of the controversial Crossed Field Theory. One of the conditions for this mode of radiation is to arrange the magnetic (H) field in phase with the electric (E) field. The original theory provided by the inventor was based on feeding the antenna through a 90 degree phase shift network which, he claimed, shifted the current fed into the antenna by 90 degrees relative to the voltage across it. This didn't make any sense as you cannot alter the phase relationships within any load impedance from outside the impedance. You either have to alter the characteristics of the impedance itself or, using the phase shift network, couple in some way into the impedance from the input of the network as well as from its output.

In earlier tests on the L+L EH antenna, I observed that, in addition to a differential voltage across the dipole pair, there was also a voltage developed longitudinally and this appeared as 90 degree phase shifted to the differential voltage. I figured that there must be two E fields acting, one from the differentially developed voltage, and the other from the longitudinal voltage acting at 90 degrees to the other. This was described in reference 1.

Both these two earlier theories further evolved around an H field developed from Displacement Current of the E field. The idea of a displacement current in space developed from an E field seems to be more of a mathematical tool used by Maxwell to explain fields and radiation rather than a physical identity. The validity of that theory has been questioned by many.

Getting away from that theory, I moved towards using direct series current for the H field as something easier to accept. I figured that using the H field developed from the series coils would put that field in phase with the E field across the dipoles, and this led to the construction of my X2/X3 antennas. To verify the theory, I set up a test to monitor the relative phases of the actual E and H fields and confirm that they were in phase. The test was described in one of my articles on the X2/X3 (Reference 2).

Antenna series resistance is easily measured using the X2 antenna circuit and this proved to be considerably higher than that of the coil loss resistance. I had always figured, for EH or any of these small antennas, that, if we could show considerable resistance rise above that of the coil resistance and much more than the calculated radiation resistance of a simple dipole, then the difference increase would surely be increased radiation resistance and improved radiation. Hence, there would be proof that the two fields were interacting to enhance the radiation. I was initially convinced that the rise in series resistance was the result of those interacting fields and that the crossed field enhancement was occurring. However, as I described in reference 3, I eventually discovered other reasons for that rise in resistance.

Getting back to the EH antennas, it became apparent quite early in the experiments that, due to the unbalanced dipole connection in all of the EH antennas, a large amount of longitudinal or common mode current component flowed in their coaxial feedlines. I was able to eliminate this by inserting a tuned balun or trap in the coaxial line, and this prevented interaction between the antenna tuning and the length or location of the line.

What also became apparent was the need for a short length of line feeding the EH antenna to make it work the best. If the trap was placed right at the antenna input, or the antenna was properly balanced, about two S points in signal level was lost. All the EH amateur antennas are unbalanced and it has become clear that they need a longitudinal or common mode current component operating over at least a short section of the transmission line to achieve performance. The main theme of this article deals with the measurement of that current component and some theories on how the antennas work without the crossed fields.

It is interesting that the VK5BR -X2/X3 antennas started off as balanced crossed field antennas. Similar to the EH antenna, their signal level improved by about two S points when the antenna was connected up in an unbalanced mode to become the X3U. This was discussed in my last article on the X3 (Reference 3).

Because of these observations, I set out to measure in more detail the currents running in the two legs of the coax feeding the EH antenna, and also the currents running in the individual dipole legs. What follows is detail of the test gear used, the measurements carried out, and conclusions drawn from the measurements.

All in all, it does appear that the successful performance of the EH antenna is more to do with the longitudinal conduction path down the cable extending the effective antenna length, rather than due to the Crossed Field theory. Evidence of the conduction path is shown by the common mode current which can be tracked down the full length of the coaxial transmission line.

The common mode currents can be blocked by a trap anywhere in the coax cable to limit the length of the longitudinal conduction path to the distance between the trap and the antenna input connection. Even if this distance is quite small, it can be quite effective in increasing radiation resistance to improve radiation efficiency.

Specification of test gear

This section quantifies the calibration and performance characteristics of the test gear used in the common mode testing described in a later section. As the tests were carried out on a 14 MHz EH antenna, the specifications are confined to that frequency.

Device for measuring common mode current on 50 ohms coax (Refer Fig 1)

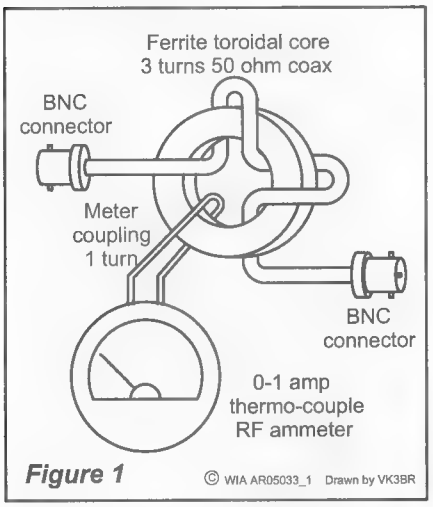

Figure 1 - Longitudinal current measuring device. Toroidal core OD = 41mm, ID = 21 mm, 11 mm thick. Detail of core material not known.

Calibration

Tests were carried on 14 MHz to determine the effect on the signal passing down the coax when inserting the device in series with the coax. The coax cable was loaded into a Marconi Power Meter which has a precision 50 ohm termination load. Power fed to the meter was registered by the meter scale as 20 watts.

An SWR meter in series with the cable read a precise 1:1 ratio. With the device inserted and the SWR meter on the source side of the device, the SWR still read a precise 1:1. Registered power dropped by 1 watt - this calculates to an insertion loss in the device of 0.2dB.

Calibration of the meter current reading at 14 MHz was carried out by passing a current near 2/3 FSD through a wire run through the toroid centre opening. This was compared to the same current with the wire directly connected in series with the RF ammeter. From this, the calibration for the device was determined as 1.2 times the reference direct reading.

Application

The measuring device is inserted in series with the coax line at any connector junction of the coax using BNC connectors so that the magnitude of common mode current can be derived. (See Photo 1).

Photo 1 Measuring of common mode current on the coax at the input to an EH antenna.

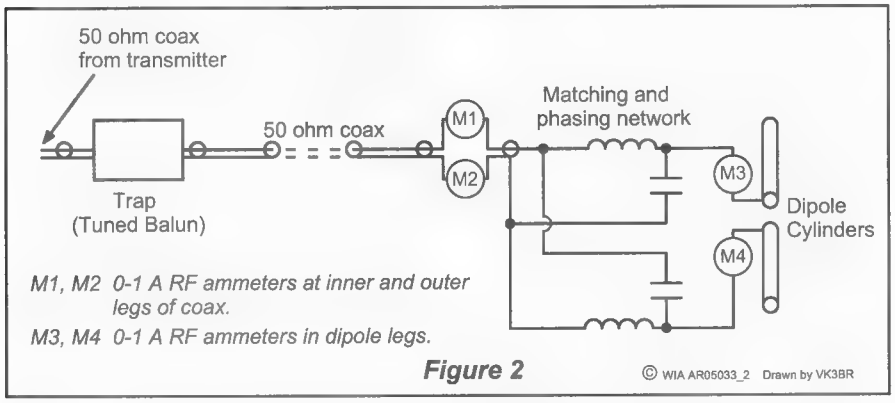

Figure 2 - Measurement of current in coax transmission line legs and legs of dipole cylinders of L+L EH antenna.

Direct measurement of current in legs of coax line and legs of dipole cylinders using RF ammeters (Refer Fig 2)

Accuracy of thermo ammeters

As a check on the accuracy of the thermocouple RF ammeters used in the device (Fig 1) and used as direct reading meters in other tests (refer Fig 2), the current readings were checked against the current calculated from the power indicated by the Marconi power meter scale using I = (P/50)-2. For the two RF ammeters used, one read 5% lower than the calculated figure and the other read 7% lower. This is about as good as one might expect from these thermo coupled instruments.

Device to Measure Maximum & Minimum Common Mode Current points down Transmission Line (Coax or 1/2 inch 300 ohm open line) - refer Fig 3.

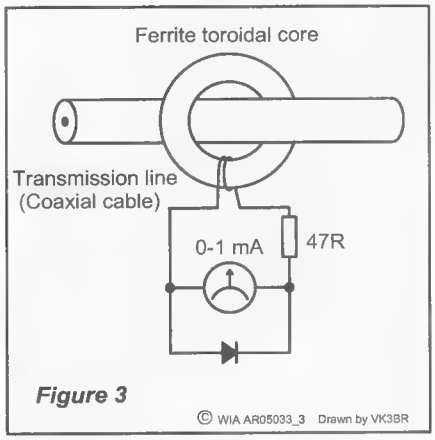

Figure 3 - Device to measure maximum and minimum points of common mode current. Inner diameter of toroid is large enough to slide over BNC connectors at cable ends and also the 300 ohm ½ inch TV open line cable used with the X3 Antenna. Toroidal Core - Amidon FC500 Mix 61, OD = 30 mm, ID = 18 mm, 6 mm thick.

Calibration

Tests were carried on 14 MHz to determine the effect on the signal passing down the coax when inserting the device in series with the coax. The coax cable was loaded into a Marconi Power Meter which has a precision 50 ohm termination. Power fed to the meter was registered as 20 watts.

An SWR meter in series with the cable

read a precise 1:1 ratio. With the device inserted and the SWR meter on the source side of the device, the SWR still read a precise 1:1. Negligible power loss is assumed as there was no discernible change in the power reading.

With 20 watts fed down the cable to the load, the 0-1 mA meter in the device read 0.1 mA. This device is quite sensitive and it has to be used with currents down the line more appropriate to powers around 1 or 2 watts. As such, 0.1 mA represents a very low degree of common mode current relative to the differential currents running for the 20 watts into the load. The device has essentially been used to determine comparative values of common mode current measured at different locations down a transmission line. However, I did determine that 0.22 amp of RF current at 14 MHz corresponded to 1 mA, the full scale deflection of the meter. A reading of 0.1 mA on the meter is therefore 22 mA and 29 dB down on the differential current for 20 watts into 50 ohms.

Photo 2
Measuring of common mode current on open wire line to the X3 antenna.

Application

The toroidal core is slid down the whole length of the transmission line to record the relative change in common mode current over the length of the line. Points of maximum and minimum common mode current can easily be determined. As a calibration was carried out on the meter relative to actual RF current, it could also be used to determine the magnitude of the current in real terms. Photo 2 shows measurements being taken on the line pair of the X3 antenna.

Tuned Longitudinal Current Trap for 14 MHz (Photo 3)

The winding is arranged with sufficient turns to resonate at 14 MHz with a 10 pf capacitor fitted inside the PVC tube and connected between the coax outer conductor two ends.

Details of the trap formed are as follows:

Former - 55 mm PVC Tube
Cable - RG174
Winding - 13 turns
Length of coil – 36 mm
Inductance - near 11 μH
Q - near 50
Measured differential through loss at 14 MHz - 0.2
Estimated longitudinal rejection impedance - 48 kohms

Measurements of out of balance currents in coax legs and resultant common mode current component.

This section records measurements taken which show the extent to which currents in the coax legs and the dipole legs are out of balance, and measurements of the common mode current component which is developed. The figures show that current in one leg can be as high as twice the current in the other.

Some initial measurements of Out of Balance Current on the 20 metre L+L EH antenna

The following is one set of measurements recorded to demonstrate the unbalance which occurs between the inner and outer legs of the coax cable feeding the L+L EH antenna. (Refer Figure 2).

Test series A1. No Trap fitted. With about 35-40 watts of power and five metres of 50 ohms coax between the transmitter and antenna terminal, the line currents measured as follows:

0.5 metres down from antenna:
inner coax conductor - 1 amp
outer coax conductor - 0.4 amp
At transmitter end:
inner coax conductor - 1 amp
outer coax conductor - 0.5 amp

Test series A2. Trap fitted at two metres down from the antenna input. With about 20 watts fed from the transmitter, the line currents measured as follows:

0.5 metres down from the antenna:
inner coax conductor - 1 amp
outer coax conductor - 0.5 amp
Near the output of the trap:
inner coax conductor - 0.7 amp
outer coax conductor - 0.6 amp
On cold transmitter side of trap
inner coax conductor - 0.58 amp
outer coax conductor - 0.58 amp
At transmitter end of coax:
inner coax conductor - 0.58 amp
outer coax conductor - 0.58 amp

This demonstrates the extent of the unbalance of currents between the inner and outer legs of the coax, the difference being the common mode current. Without the trap fitted, this out of balance current condition extends right from the antenna to the transmitter output.

It also demonstrates that the trap is effective in restoring balance in the currents on coax connection between transmitter and trap.

People have been talking about induced current running down the coax shield, but observe that the higher current is in the inner conductor, not the outer.

Note also that, even with the trap, there is probably about three metres of considerable longitudinal conduction component flowing between the trap output point and probably near the top of the antenna.

More measurements of Out of Balance Current on the 20 metre L+L EH antenna (Refer Fig 2)

Test series B1 - 50 ohm coax cable - nine metres long - trap fitted at transmitter end of this coax length.

Power used about 30 watts to get adequate reading on 1 amp FSD RF ammeters.

RF Ammeters inserted directly in the wire connected at each dipole leg:
Top cylinder - 0.35 amp
Bottom cylinder - 0.1 amp (Note 1)
RF ammeters connected in coax legs 1.5 metres down cable from antenna:

Inner conductor - 0.5 amp
Outer conductor - 0.2 amp
Current difference -
(0.5 - 0.2) = 0.3 amp

Check with toroid coupled instrument (fig 1) around whole coax - 0.3 amp (common mode).

Measurement with toroid coupled instrument (fig 1) right at antenna. - 0.45 amp (common mode).

Test Series B2 - trap moved to 1.5 metres down cable from antenna.

RF Ammeters inserted directly in the wire connected at each dipole leg:
Top cylinder - 0.3 amp
Bottom cylinder - barely readable (note 1)

Measurement with toroid coupled instrument (fig 1) right at antenna - 0.4 amp (common mode)

Test Series B3 - trap moved to antenna input point.

RF Ammeters inserted directly in the wire connected at each dipole leg ,
Top cylinder - 0.1amp (note 1)
Bottom cylinder - almost no deflection (note 1)

Measurement with toroid coupled instrument (fig 1) right at antenna - no meter deflection (little common mode).

I noticed that one of the two matching inductors was getting quite warm.

Note 1 - with the cramped scale for low readings on the RF ammeters, it is almost impossible to interpret a reliable figure below 0.2 amp.

The tests clearly show the unbalance of currents extends beyond the transmission line legs to the dipole itself.

Tests to determine where best to Locate the Isolation Trap

The best place to have maximum common mode current seems to be right at the antenna where it can be most effective for radiation. The test was carried out on the 20 metre L+L EH Antenna to determine what length of common mode active cable provided maximum unbalanced current near the antenna input. The active length is set by the location of the trap in the cable. To check this out, the detector (Fig 3) is run down the selected length of the active coax cable section.

Putting the trap (Photo 3) at 4.5 metres down from the antenna input connector seemed to work out well. That provided maximum unbalanced current at the top end of the cable, whilst still maintaining a high value right down to 2.5 metres from the top. Beyond that it tapered down to almost nothing at the output connection of the trap.

Experimentation with placement of the trap showed that the trap could be put at less than 4.5 metres but, if it was put at a greater length, the maximum unbalanced current point moved down the cable away from the top. So it appears that for the 20 metre antenna, 4.5 metres down from the top, is a desirable place to put the trap. With the addition of the antenna itself, that represents a length of about ¼ wave.

Explanation of Longitudinal or Common Mode Current

Let us consider any two wire transmission line. Each leg of the line develops a magnetic field. The currents in the two legs run in opposite directions and, if these currents are equal, the fields cancel and there is no resultant field. If the currents are not equal, then there is a resultant field equivalent to that being generated by a current equal to the difference between the two individual currents in the two legs. This equivalent current difference is called the longitudinal mode current or common mode current. Note that its vector direction is that of the leg which has the highest individual current of the two.

The concept might be easier if you think of the two legs in a balanced line pair such as open wire line or twisted cable pair. Of course, there are also the electric fields around each leg of the pair and, for balance, each leg must also have equal capacitance to ground or other adjacent objects.

The coaxial cable is different in that the electric fields are confined to within the dielectric space between the inner and outer conductors, and are shielded from venturing into outer space by the concentric nature of the outer conductor.

In trying to understand something like this, one has to first consider the case where frequencies are lower. Hence, the line lengths are short enough compared to a wavelength such that standing waves are practically non existent.

In fact, you can take the balanced line pair which feeds your home telephone.

Any competent telecommunication technician could tell you that if you get an unbalance to ground due to resistive leakage or capacitive unbalance, some of the current in one line leg can return via the ground path instead of via the other leg. So we get an imbalance of current

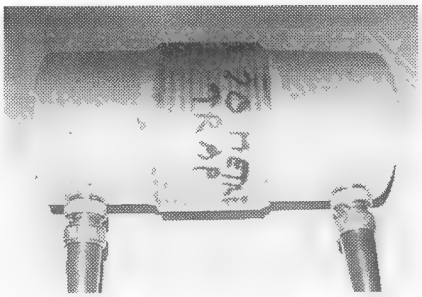

Photo 3 20 metre tuned trap.

flowing in the two line legs. Because the individual fields around the line legs no longer cancel, the line can induce crosstalk into other circuits and, vice versa, the line can pick up noise from other fields in the vicinity.

Of course, for the EH antenna, we are concerned with coaxial lines but the process I have described is the same. If there is an unbalance of resistance or reactance to earth by the antenna at the coax end, then some current from one leg returns via earth. The vector sum of the current in the two legs, plus the current in earth, must be zero. Hence, there has to be more current in one leg than the other.

The effect of unbalanced capacitance to ground, and how longitudinal or common mode current component is generated, was described in reference 1. However, I did not explain how the effect is multiplied by the Q factor of the antenna tuned circuit. This is demonstrated in more detail by Fig 4 (page 28).

The diagram is typical of circuit conditions for a tuned 14 MHz small antenna such as the EH with an antenna resistance of 30 ohms. If we first imagine the antenna with a 30 ohm load, but without any resonant circuit, we see that 1 amp of differential current develops 30 volts across the 30 ohm load. Return current via a 4 pF capacitance to ground merely accounts for 10 mA of current (the 4 pF is an arbitrary figure and will depend on closeness of the antenna to earth or nearby objects).

But bring it to resonance by loading with a typical 1200 ohms reactance and we get the voltage multiplied by Q = (30 x 1200)/30 = 1200 V. Since the bottom dipole half is connected to the coax shield it is essentially at earth potential (this might change due to the effects of the common mode current itself but let's leave that for the purposes of the argument). So we can consider the potential applied from the top dipole element to ground is also 1200 volts and this will now pass a Q multiplied current

of 0.43 amp through the 4 pF to ground to return via the earth loop.

Because there is 0.43 amp returned via the ground loop, there is 0.43 amp less returning to the source via the coax outer conductor. So the two currents are out of balance and we have a magnetic field developed around the coax cable from the difference current (or common mode current).

Some have argued that there is not enough capacitance to ground for what I have described. However, I know from my experience with the X3 antenna that there is considerable coupling to ground which shows up in the measured antenna series resistance and which alters value with change in height. Whether that coupling is capacitive, inductive, or due to radiation absorption, I cannot be certain. However, whatever that form of coupling takes, if there is a different degree of coupling from one leg than from the other, the result is the same as I have described for capacitance coupling.

The common mode component will run as far as you let it, either over the whole of the coax length, or to a point where it is stopped by the trap. If you make the length between the trap and the antenna too great, you get standing waves on the common mode component. Keep it less than ¼ wave and you get a fairly constant value of current over the common mode active length.

With a longitudinal current component fairly constant over nearly ¼ wave length of the coax cable, this section of the cable provides additional antenna length to aid radiation.

One can be misled by the strong electrical field developed across the dipole due to the high voltage and which will light up a fluoro lamp so brilliantly. If you balance the dipoles against ground, voltages from each dipole leg to ground are in opposition, no current returns via ground, and there is no common mode component in the coax. As we know from our tests, it then doesn't radiate as well even though there is still brilliant illumination of the fluoro lamp.

Earth Currents

I have been questioned whether induction into ground really takes place in the EH antenna causing current to return via ground. Here are some more interesting facts concerning current measurements taken at the transmitter output connector:

1. If I run a bypass jumper via an RF ammeter from the shield side of the connector, or the coax shield, direct to ground, I measure high current. The jumper provides a path for some of the current returning via earth.
2. If I break the coax lead and insert ammeters in each leg of the coax I get about twice the current in the inner conductor as in the outer conductor. Quite clearly there has to be a balance of current returned and the only path is via the transceiver earth connection or via its mains earth.

These facts prove conclusively that much of the return current is via earth and as the antenna and the other end of the feeder coax are all floating, the only way it can get into earth is by some form of induction or radiation from the antenna.

In effect there is a longitudinal current loop which includes the coax feeder. The loop can be broken by inserting the tuned trap anywhere in the coax line and this presents high impedance to any longitudinal or common mode current component running in the line. However, when the loop is broken, a standing wave of the longitudinal component is set up between the point where the trap breaks the loop and the top end of the antenna.

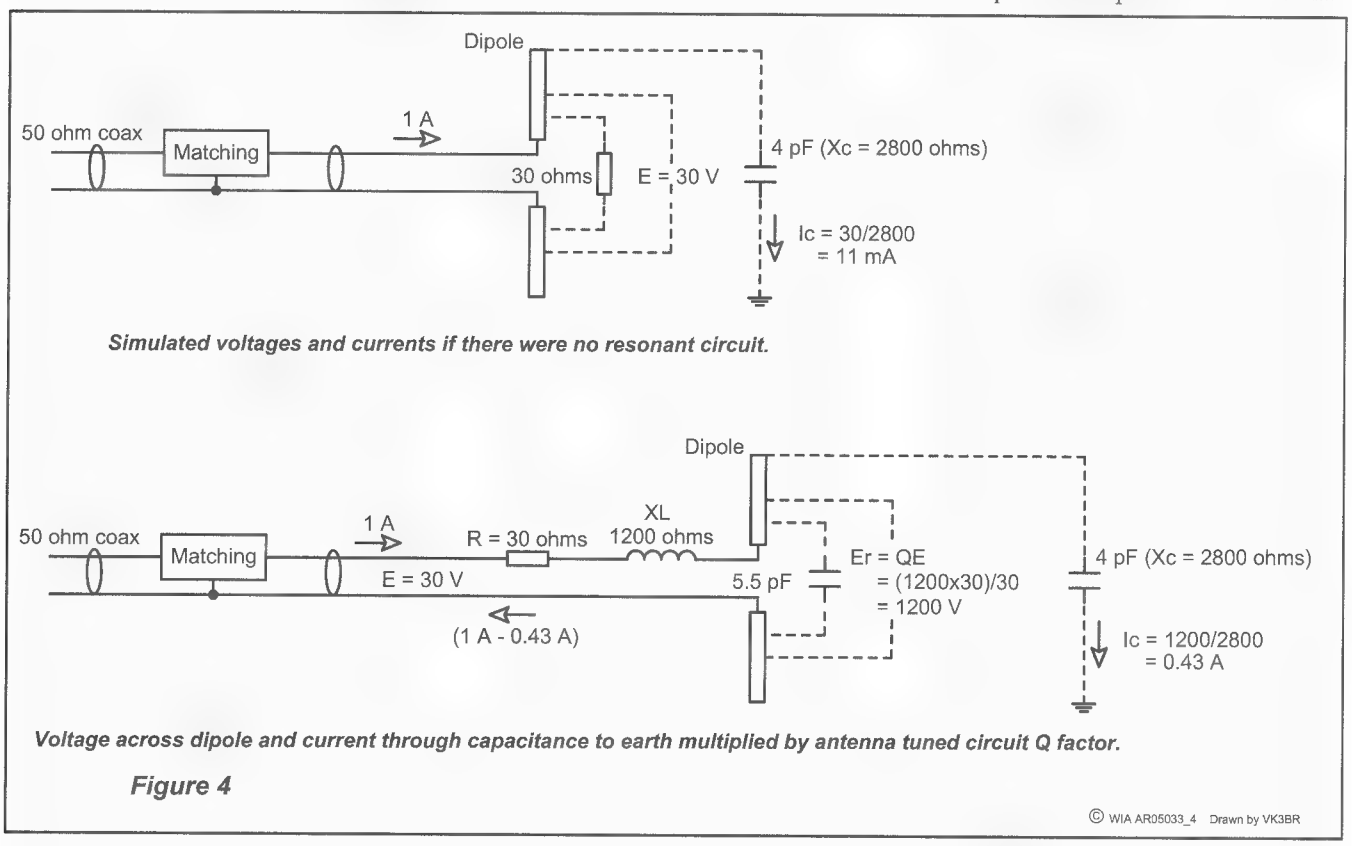

Figure 4 - Shows how antenna Q multiplies common mode component on the coax line.

Theory on Short Coax Tail

In the introduction I pointed out that the EH antenna radiates about two S points better with a short length of coax tail as part of the unbalanced antenna circuit. The following is an explanation of why this occurs.

Suppose we fit the trap several metres down from the antenna input. If we monitor the longitudinal current component anywhere on the transmitter side of the trap, or immediately on the other side, we see negligible common mode current component. However, if we monitor along the coax closer to the antenna we again see a longitudinal component. There can be a very good explanation for this using basic antenna principles:

Unless the antenna is balanced, there is a longitudinal conduction path between the top tip of the dipole to the connection point at the trap, and this conduction path forms a radiating element. As with any radiating element, current distribution is such that maximum current is at the centre of the element and there is zero current at the ends. So, as you move away from the trap towards the centre of that element, up goes the current. Clearly, the coupling of signal into the radiating element must be off-centre. But anyone familiar with the Windom antenna knows that this is a valid method of feed.

Fig 5 (over page) shows the 20 metre EH antenna with a dipole 0.5 metre long and trapped to block longitudinal current in the coax cable beyond two metres below the top of the dipole. On its own, the radiation resistance of the dipole calculates to a mere 0.2 ohm. However, with unbalanced connection to the coax providing a longitudinal path extending to the trap output connection, there is an effective radiator length of two metres. The calculated radiation resistance at the centre of the two metres is 3 ohms but it is even higher at the off-centre point where it is fed. Hence, its value is high compared to the series loss resistance and the efficiency is very much higher than that achievable for the simple 0.5 metre dipole operating when the antenna circuit is balanced.

The antenna works better in its unbalanced connection because radiation resistance increases with the square of the radiating element length and the radiation resistance of the longer radiation element formed is greater than that of the shorter dipole on its own. As the efficiency is related to the ratio of radiation resistance to loss resistance, radiation is improved.

Conclusions

I have reported on a lot of measurement details relating to the longitudinal or common mode current component reflected to the EH antenna transmission line.

Much as I did with my own VK5BR-X2/X3 short antennas operating in

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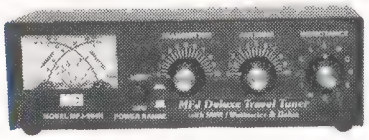

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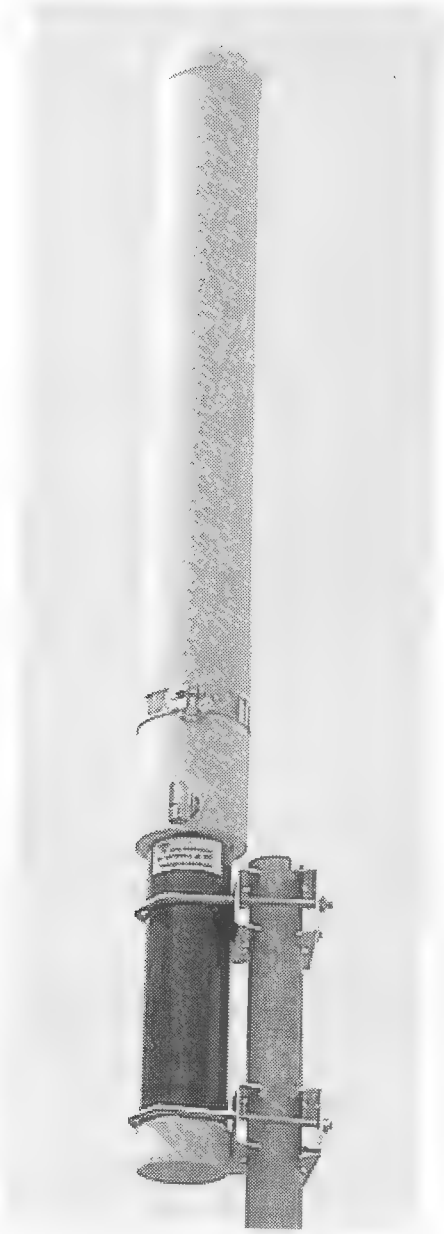

Photo 4 A 20 metre Star EH antenna made by Arno Electronica.

an unbalanced mode, I have eventually reached the conclusion that the successful performance of the EH antenna is more to do with its unbalance causing an extension of effective antenna length down part of the feeder than due to the controversial crossed field theory.

A tuned balun or trap can be placed somewhere in the coax line to prevent RF getting back into the radio shack, to inhibit earth loop current and to set the length of line which operates actively in a longitudinal mode. The trap should be placed down the cable where current is kept high over a considerable length of the cable. A point a bit less than ¼ wave down the cable from the dipole works fine but, if made much longer than ¼ wave, the current maximum will move down the cable away from the dipole.

Even with longitudinal current blocked with a trap only a short distance down the cable from the antenna, the antenna operates efficiently because the effective length of the radiating element is increased by the short unbalanced length of cable.

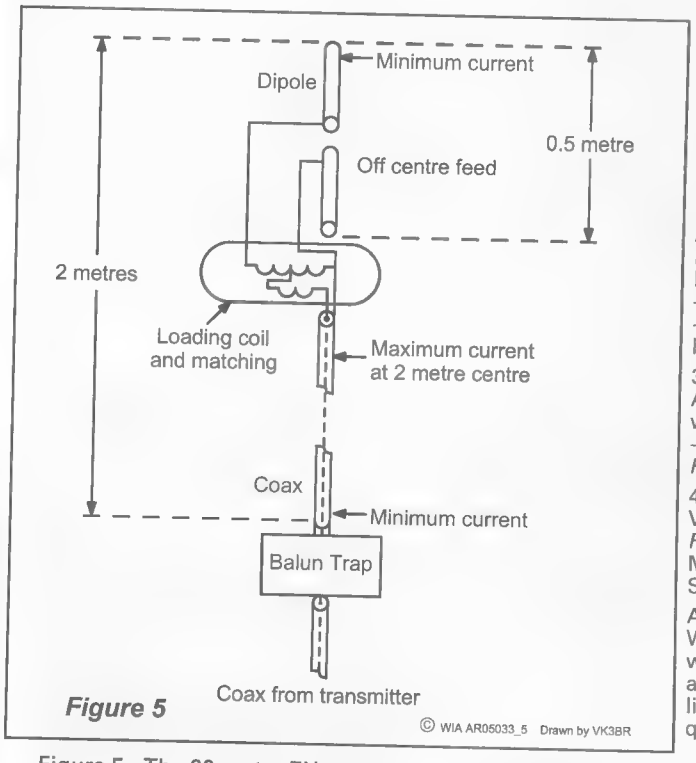

Figure 5 - The 20 metre EH antenna with a short coax tail.

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3. The VK5BR-X2/X3 Antennas - Operation when Unbalanced. - Also see *Amateur Radio,* (Reference 2).

4. Other articles by VK5BR in *Amateur Radio* - April 2003, May 2004, July 2004, Sept 2004.

Also refer to VK5BR Web Site http://www4.tpgi.com.au/users/ldbutler or link from http://www.qsl.net/vk5br

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A simple direct-reading Q meter

Drew Diamond VK3XU
45 Gatters Road Wonga Park VIC 3115

Amateurs everywhere have a keen interest in building antenna couplers/tuners, impedance matching networks, filters, antenna loading coils, RF power amplifiers, receivers and transmitters. All these devices rely heavily upon the use of inductance coils for their efficient operation. Yet the difficulty remains, for some workers, of adequately testing their coils.

Unfortunately, the inductance function provided by low-cost digital multimeters is generally found to be of limited use in measuring microhenry coils employed at radio frequencies. Something much better is needed. The most respected instrument for accurate inductance measurements at high frequencies is traditionally the "Q" meter, where the coil is generally tested at, or near, the intended operating frequency, and a more meaningful reading is thereby obtained.

Because of their great utility, good Q meters seldom appear on the second-hand market, although some of the venerable models (Reference 1) occasionally turn up at local hamfests. They are very much in the "boat-anchor" class, however, and do rather take up a lot of precious bench space.

Various patterns have been described in overseas and local journals but, to this writer, they seem to fall just short of the sort of thing required by the amateur experimenter. Nevertheless, Lloyd Butler's inspirational efforts, described in References 2 and 3, come very close to the mark. However, the need for a signal generator that can provide a large output power level may be problematic for the typical amateur. The power level difficulty is neatly tackled by Lindsay Lawless' bright idea (Reference 4), where an existing HF QRP transmitter may be used to provide the necessarily large test signal.

The simpler Q meters employ the "3 dB bandwidth" method (References 5 and 6), where the worker must do a new (albeit simple) calculation for each new measurement. A direct-reading Q meter along the lines of References 2, 3 and 4 would be much more "user friendly". The Butler and Lawless patterns may be combined and simplified by employing an existing QRP transmitter as a signal source, and a VTVM or DMM as our indicating device.

Theory

Q, or Quality factor, is a figure of merit and may be defined as "the ratio of energy stored to energy dissipated in a circuit". For lumped resonant circuits, Q is equal to the ratio of the purely inductive or capacitive reactance (X) to the losses, expressed as series resistance (R).

The ratio X/R is also equal to E/e, E being the voltage across either reactance in a series circuit at resonance, and e the voltage injected in series. For circuits with a Q of greater than about five, this ratio may also be expressed as circuit magnification factor (m) (see Reference 7 for a more lucid explanation).

Laboratory Q meters generally employ a configuration similar to that shown in Figure 1.

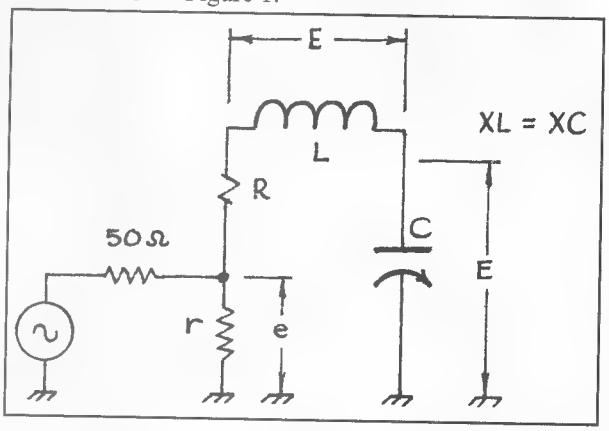

Figure 1

Non inductive resistance r, where the test signal voltage e is inserted, is usually made as small a value as is practically possible, typically 0.05 ohms, consistent with measurable results being obtainable. The unknown inductance L, resonating variable capacitor C, and resistance r are all effectively in series. At resonance, a voltage E will be established across the reactive components L and C. Since the frame of the capacitor is usually at ground potential, it is convenient to measure the voltage across C with respect to chassis ground.

This measuring arrangement involves a few sensible cautions:

1. Resistance r shall be much lower in value than any reasonably expected loss resistance (R), thus causing little effect upon the accuracy of the measurement.
2. The input impedance of the voltmeter (VTVM or DMM) must be high, typically 10 MΩ so as to impose the least additional loss upon the test circuit.
3. The inserted voltage e is effectively in series with the circuit only if the inductance coil has no distributed capacitance (the existence of significant coil capacity causes the true Q to be higher than observed Q).
4. The variable capacitor shall be a well-made component with air as the dielectric and low-resistance wiping contacts (Reference 8). Reference 9 provides workable equations for the curious to reduce the above approximations.

What the last paragraph boils down to is that coil Q is reckoned to be close to circuit Q, all losses being bundled with the coil's losses. Notwithstanding these approximations, the amateur may obtain quite useful and meaningful inductance and Q measurements with relatively simple equipment.

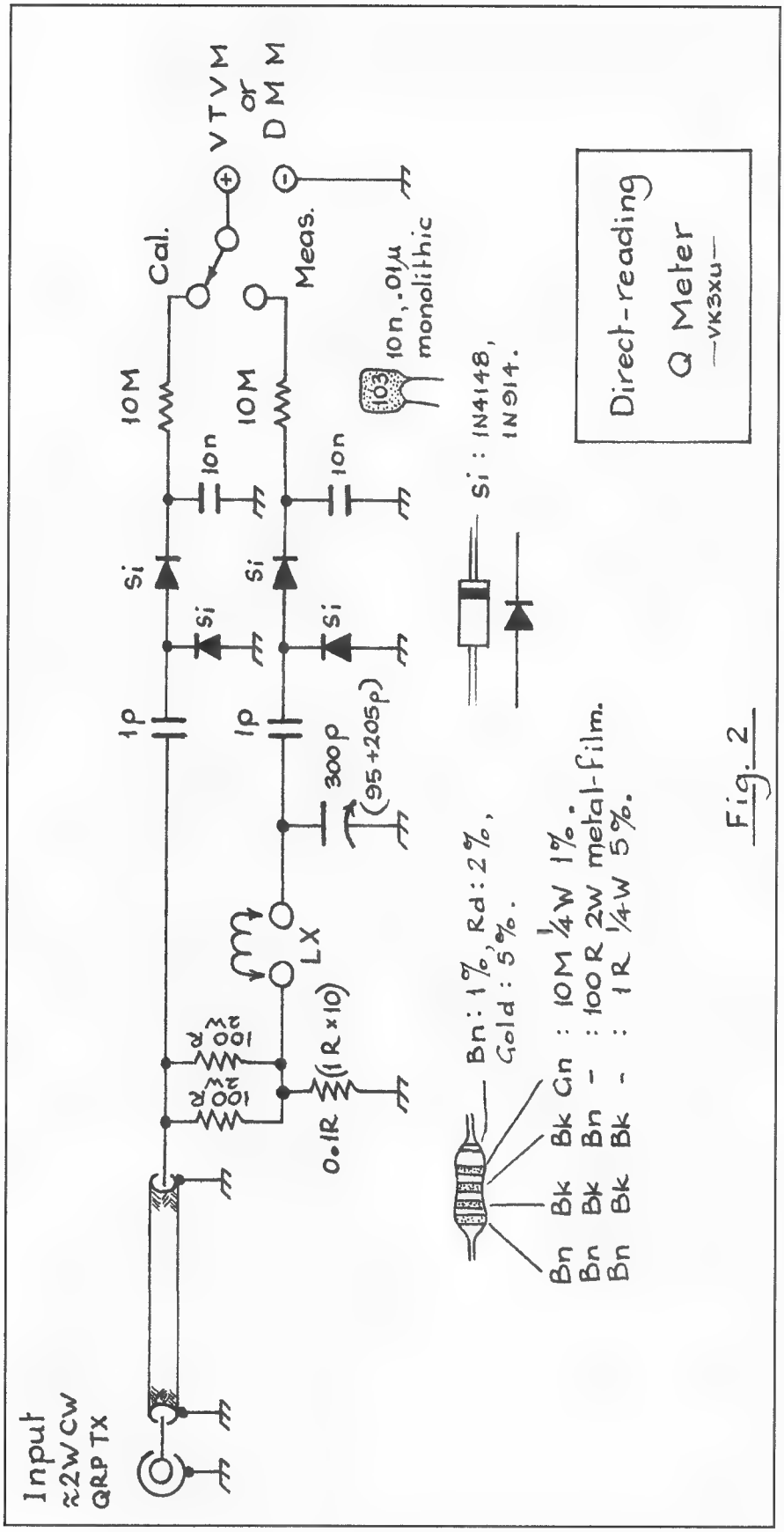

Figure 2 – Circuit of the simple direct reading Q meter.

Circuit

See Figure 2. Signal voltage is injected by the conventional use of a low value non-inductive resistor, in this case 0.1 ohm comprising 10 x 1 ohm resistors in parallel. The inductance coil to be tested, its resonating variable capacitor, and the 0.1 ohm resistor are all effectively connected in series, as illustrated in Figure 1.

A QRP transmitter supplies a test signal of appropriate frequency at a power level of about 2 W CW. Two paralleled 100 ohm metal-film 2 W resistors providea low SWR 50.1 ohm termination where close to 1/500th of the input signal voltage appears across the 0.1 ohm to become the circuit injection voltage e.

Input signal voltage is sampled through a 1 pF capacitor with an ordinary two-diode detector where the 10 nF capacitor will charge to a value very close to the rms of the input signal (Reference 10). For a 2 W signal, the voltage obtained will be about 10 V dc. By using a relatively large test signal level we are better assured that the detector diodes shall effectively operate more as "ideal" diodes.

A second identical detector is coupled to the hot side of the resonating capacitor. When the circuit is in resonance, the voltage obtained will be close to Q times the voltage across the 0.1 ohm. Since the voltage across the 0.1 ohm is 1/500th the input voltage, a circuit magnification (Q) of 500 will therefore give the same voltage as obtained for the input.

With such a large test signal, any loading effect of the measurement may be further reduced by including a series 10 megohm resistor in each detector circuit. For the conventional DMM or VTVM input impedance of 10 megohm, an input signal of about 2 W will cause a 5 V drop across the 10 megohm, and 5 V at the meter's input.

In use, a reading of 5 V is first obtained in the (Cal)ibrate switch position by manual adjustment of the transmitter's power, then a second resonated reading is obtained in the (Meas)ure position, whose value x 100 equals circuit Q. Hence, a reading in the Meas position of 3.50 V directly shows a Q of 350, and so on.

The 300 pF variable capacitor's dial is calibrated in pF. Knowing the test frequency and the value of the resonating capacitance, inductance may be calculated using the well-known formula cited in "Operation" below.

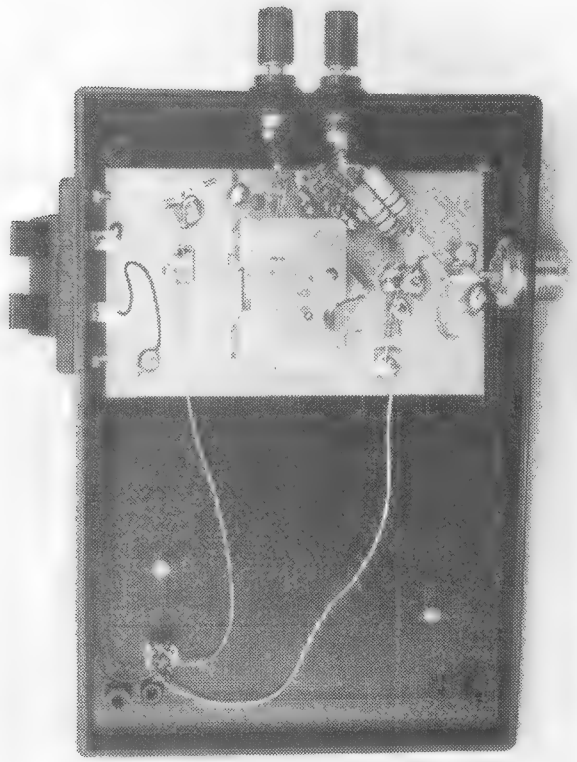

Photo 2 – Internal view of the Q meter.

Construction

To keep stray capacitance and inductance to a minimum, a sloping panel style plastic case measuring 134 W x 189 D x 32-55 H mm was chosen to house the prototype, pictured in Photo 1. However, any plastic or metal case that you prefer should serve.

A common MSP 95 + 205 pF (300 pF total) variable capacitor is suggested for the resonating element, although any well-made air dielectric component of similar or greater range will do.

A suggested method of construction is illustrated in Photo 2. The plain circuit board measures 65 x 115 mm. The binding post terminals for connection of LX should be positioned such that the tag(s) of the variable capacitor may be connected with a short wire. The ten 1 ohm resistors should be soldered between the left-hand terminal's tag and circuit board foil in a splayed manner using minimal lead lengths.

The schematic shows how a short length of miniature 50 ohm coax is necessary for connection between the test signal input connector and the top of the two 100 ohm resistors. Note that the braid is connected to foil at both ends.

Stray capacitance is kept to a minimum by using 'ugly' style for the 1 pF capacitors and detector diodes. Small circuit board pads may accommodate the 10 nF bypass capacitors and 10 megohm resistors. Ordinary hook-up wire is used for connection of the Cal/Meas switch.

The cursor shown in Photo 1 was cut from 3 mm Perspex sheet using a rod-saw, then cleaned up in a poor man's lathe. Drill a ¼" hole dead centre, insert a ¼" Whitworth bolt and nut, fix in the chuck of an ordinary electric drill which in turn is held in a vice. Gently apply a smooth file to the rotating disc and thus smooth up the disc's perimeter.

Using a sharp scriber and steel rule, carefully scribe a line across half the diameter for your pointer line, which may be filled with black crayon then polished to improve contrast. The disc may now be attached, with epoxy or hot-melt glue, to the skirt of a suitable knob. Temporarily insert a scrap of ¼" rod (potentiometer shaft off-cut) through the disc and into the knob to assure correct alignment.

A dial of corresponding diameter may be made in a similar manner from sheet aluminium, and given two coats of white undercoat to receive calibrations as described next.

Calibrating the Capacitance Dial

You will need a capacitance bridge, or a digital capacitance meter that can measure accurately down to less than 20 pF.

Using very short leads, connect the capacitance meter across the LX terminals. The left-hand terminal is the "cold" or "earthy" lead, which should connect to the corresponding terminal of the C-meter.

Mark the 20, 30, 40, 50, 60, 70, 80, 90 and 100 pF points, then the 150, 200, 250 and 300 pF points.

Operation

A typical measuring set-up is shown in Photo 3.

It is a pity that so many VTVMs have apparently been displaced by digital multimeters (DMM), because the most ideal instrument as a peaking indicator (as in this instance) is an analogue meter. Nevertheless, a DMM will serve.

The trick, when adjusting for a peak reading at resonance on a typical 3½ digit meter, is to use a low resolution first - say the 200 V dc range - then fine peak on the 20 V dc range.

The table below shows the approximate inductance measuring range for test frequencies of 1.8, 3.6, 7.2 and 14.4 MHz.

Capacitance

Test Freq	300 pF	50 pF	20 pF
1.8 MHz	26 µH	156 µH	
3.6 MHz	6.5 µH	39 µH	
7.2 MHz	1.6 µH	9.8 µH	24.4 µH
14.4 MHz	0.41 µH	2.4 µH	6.1 µH

To measure inductance:

Apply ~2W CW signal of appropriate frequency from a QRP transmitter.

Adjust variable capacitor to obtain peak reading on DMM/VTVM in MEASure.

Inductance µH = $25330/f^2C$ where f is in MHz and C is in pF.

To measure Q:

Adjust transmitter power for 5 V dc on DMM/VTVM in CAL.

Switch to MEASure.

Resonate with variable capacitor at appropriate frequency.

Q = DMM/VTVM voltage reading x 100.

continues over

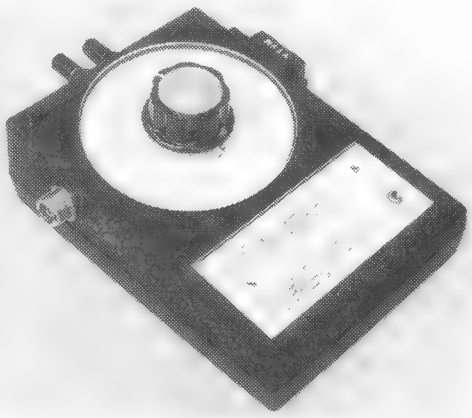

Photo 1 – The simple direct reading Q meter.

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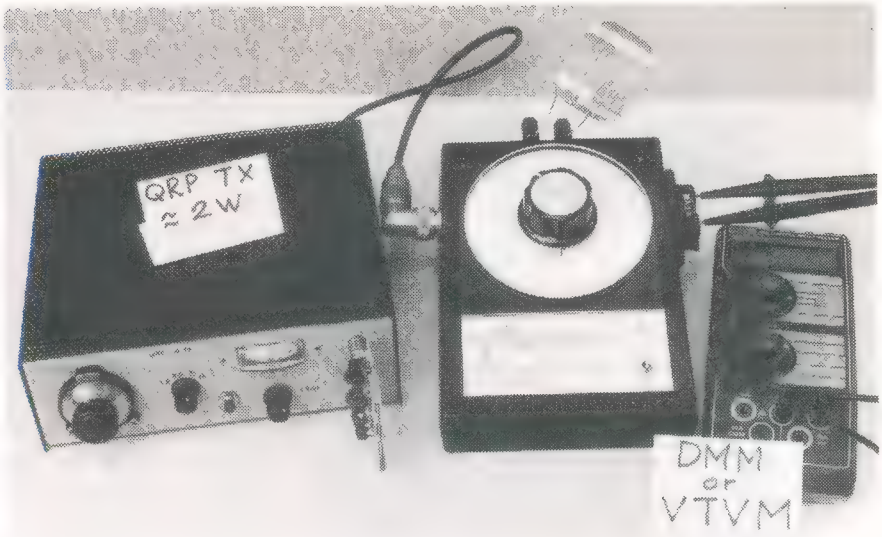

Photo 3 – Measuring set-up.

Parts

The ordinary components are collectively available from our usual electronics suppliers, including Altronics, Electronics World, DSE and Jaycar. The MSP 300 pF (95 + 205 pF) variable capacitor is a type often seen at swap-meets.

To assure low contact resistance, the binding post terminals must be of good quality, such as Jaycar PT-0460 (red), PT-0461 (black). A "2-way push connection" terminal set, PT-3000, allows our usual multimeter probes to be conveniently connected to the meter.

The black sloping plastic case may be a Jaycar HB-6096 or similar. 2 W metal-film resistors are available from Electronics World, phone 03 9723 3860, or from TV service trade suppliers

Summary

Inductance coils are used in almost every item of radio equipment where efficient operation depends largely upon the use of low loss (high Q) coils. The keen amateur experimenter who is seriously interested in coil measurements therefore requires a simple means of determining inductance and Q to acceptable accuracy.

A practicable method, based on the proven voltage injection principle, has been outlined, where an existing low-power CW transmitter provides the test signal, and an ordinary DMM or VTVM serves as a metering device for the direct measurement of Q. Knowing the test frequency and the value of resonating capacitance, inductance in µH may be calculated using a simple formula.

ar

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News from VK2

Tim Mills VK2ZTM.
E-mail to vk2wi@ozemail.com.au

AGM — New Council

The 2005/2006 AGM of AR-NSW was held on Saturday the 22nd April. There were 42 members in attendance and the meeting was chaired by outgoing President, Chris VK2XCD. 73 apologies were received.

Once again, this year there was an election, with 11 candidates for the 9 positions. 208 votes were cast.

The new Council consists of Barry White VK2AAB President, Owen Holmwood VK2AEJ Secretary, Noel May VK2YXM Treasurer, Norm Partridge Vice President with membership and clubs, Terry Ryeland VK2UX as junior Vice President and education, Brian Keegan VK2TOX is web master and publicity, Peter Tolmie VK2ZPT is assistant to Terry with education and Mark Blackmore VK2XOF looks after Dural, trash and treasure and deceased estates.

Life Membership

Pat Leeper VK2JPA received Life Membership of AR-NSW. A report on the various resolutions and motions before the meeting has been given both from VK2WI and the web site. The majority of the resolutions and motions were either withdrawn or not passed, in some cases to further clarify their intent. Retiring from Council at this year's meeting were Chris Devery VK2XCD and Chris Flak VK2QV who were thanked for their work for AR-NSW.

Trash and Treasure

The next Trash & Treasure will be held at VK2WI, Dural on the last Sunday of July, the 30th. Check the web site - www.arnsw.org.au - for tender details. The third quarter VK2WI roster is currently being prepared and as always, we need more operators on the team. Contact John VK2JJV or the office with your offers. Brian VK2TOX has taken over as the AR-NSW web master from Chris VK2QV.

Moving

As reported in last month's notes, AR-NSW has sold Amateur Radio House and has leased a short term office at 8 Melville Street Parramatta, until a transfer of operations to Dural in a few months.

The contact methods remain the same with the telephone 02 9689 2417, Fax 02 9633 1525 and postal at Box 9432 Harris Park 2150. Office days are currently Thursday and Friday but it is advisable to telephone ahead to ensure the office will be attended. Currently, there is no availability of the library.

Foundation courses and exams will be held at Melville Street on the last weekend of the month, booking inquiries via the office. Some groups who previously met at Amateur Radio House have arranged alternate meeting locations. The Tuesday evening Home Brew meeting on the first Tuesday is in the party room of the Parramatta McDonalds, party hats do not have to be worn.

Callbook

It is time to check out your details for the next callbook. Callsign details for callbook entries only come from ACMA, so ensure they have them correctly, you can check your details via the internet.

Your club details should go to Ted VK2ARA and repeater, beacon and packet listings, many of which are currently in error or no longer operating, should go to John VK3KWA. Alternatively, send them to the WIA Secretary via e-mail.

Submitting News

To submit news to VK2WI. Send an E-mail to vk2wi@ozemail.com.au by noon Friday.

Many club and group activities, have the bare details as listed in the callbook. If you require publicity, you have to submit it.

The same applies to club conducted exams, let the office know the dates, both so they can answer inquiries and for inclusion in VK2WI news.

WICEN

WICEN [NSW] Inc has a new postal address. It is P.O. Box 126, Gosford, 2250. The former St. Leonards box will be cleared for the next few months. This box was first used by the NSW Division when they were at Atchison Street and was taken over by WICEN when the move to Parramatta took place in 1982. Next year, AR-NSW will have a Dural post box in operation.

Out and About

This month has the Oxley Region Field Day on the long weekend. There has been extensive notification in recent issues of AR. The Oxley Region recently re established their VK2RCN repeater on 7000 as well as working on their other repeaters.

On Saturday the 24th June, the Waverley ARS will be holding their annual auction, see page 32 in May AR for details about Waverley.

In late May, Ian VK2ZIO officially opened his Kurrajong Radio Museum. Ian's extensive collection was the Castle Hill Military Museum until his relocation a couple of years ago to a former mushroom factory in the Blue Mountains foothills. It is well worth a visit; look for the details on his web site.

Repeaters and beacons

For VK2 repeater or beacon applications or changes, you should first check with Brian VK2WBK, who provides the VK2 NTAC support, either direct or via the AR-NSW office.

Submission of the application to ACMA is done by Peter VK3PP who is the National Repeater Co-ordinator. Some recent applications have been short on site and other details. Remember, that in order for your application to proceed quickly, it must have as much supporting documentation as possible. Assessment of an application has to take into consideration many other factors besides just your desired service.

73 - Tim VK2ZTM.

News from

VK3

GARC and NWTARIG to re enact first radio between Mainland and Tasmania

On July 12 2006, the Geelong Amateur Radio Club, in co-operation with the Borough of Queenscliffe and the North West Tasmanian Amateur Radio Interest Group with the Devonport City Council, will be staging a re-enactment of the Marconi Company's historic transmission between Devonport, Tasmania and Queenscliff, Victoria using a mix of old and modern radio modes and techniques.

Although the event will be run over 5 days, the actual re-enactment will be held at 1:30 pm on Wednesday July 12, approximately the same time as the original Official exchange of greetings between the Governors and Peoples of Victoria and Tasmania were sent 100 years before.

For the event, a replica of the operating section of the original Radio Telegraph Shack is being constructed, and will be in place at the original site near Queenscliff, Victoria. Both the GARC and NWTARIG are busy organising the celebration and are gathering Antique Radio Artefacts and Memorabilia from museums and private collections all over the world to exhibit during the 5 day event.

After the re-enactment which will be witnessed by politicians and public alike, the replica Shack and a caravan will remain at the Queenscliff site until Sunday July 19, allowing the Amateur Station to operate more or less continuously under a yet to be announced special callsign. All stations interested in the event and Amateur Radio in general are invited to make use of this unique opportunity.

As well as the re-enactment ceremony many 100 year old artefacts, vintage cars etc. will be exhibited in Queenscliff and Devonport and at the local museums. The Maritime Museum at Queenscliff will have items from Museum Victoria on display including what is believed to be the original Morse Key.

As the original site in Devonport is now a commercial Caravan Park, the Tasmanian celebrations and station will be at the Devonport Maritime Museum where all cross-Strait greetings ceremonies will originate and the radio museum pieces will be on display. Exhibited there will be an original complete Marconi spark transmitter/receiver, which we would love to use but wouldn't dare. No prizes awarded for guessing the reason!

Following the Wednesday event, the Devonport City Council will hold a Civic reception. An ARISS space station contact is scheduled for between the 12th and 15th, with Devonport High School and Reece High School senior science pupils. The exact time will be announced by NASA closer to the event.

A 20-page commemorative booklet is in production, including a reprint of the original booklet published by Marconi at the time.

All persons interested in History, Broadcasting, Amateur Radio, Radio Techniques and Radio in general are most welcome to attend the Sites for the re-enactment or on the days following up until Sunday the 19th at Noon when the Stations will close. Both the Queenscliff and Devonport sites are marked: Devonport with a Post and Plaque, while the Site at Pt. Lonsdale near Queenscliff (Melway map 499 K2) is marked with a Cairn and Bronze Plaque.

Everyone is welcome.

Expect more on the re-enactment and the technical side from the GARC in a future issue of AR.

Cal VK3ZPK and Ron VK7RN

Correction:

VK5JST Antenna Analyser

Distribution of kits for this project is now handled by the South Coast Amateur radio Club [SA](SCARC).

Contact details for Kits now are:

kits@scarc.org.au

or alternatively

SCARC PO Box 333

Morphett Vale SA 5162

The Gippsland Gate Radio & Electronics Club members are at it again.

On July the 22nd GGREC will conduct their Hamfest Sale at the Cranbourne Community Hall on the corner of Clarendon and High streets, Cranbourne. Melway 133 K4.

Some 40 tables of goods will be present at this large venue, but stall holders should book early as demand will be very high.

Reservations for stall holders may be made by contacting Dianne Jackson VK3JDI on (03) 5625 2545. Doors open at 8:30am for stall holders and at10:00 am for buyers.

The admittance fee of $5 for buyers will go towards the upgrading of facilities at our Club Shack & meeting room in Cranbourne. Take away food, plus free tea and coffee will be available.

The entry fee includes a ticket in the Door Prize which will be drawn around 1:30pm for all who register upon entry. Great prizes to be won. Additional tickets can be purchased on the day.

GGREC Meetings

Visitors are welcome to attend Club meetings which are conducted on the first and third Fridays of each month at the Guide Hall in Grant Street Cranbourne. Check out our comprehensive web site at: www.ggrec.org.au for more information on the Club and its events.

Plan ahead

GGREC

Hamfest Sale

22 July

Cranbourne Community Hall

Cnr of Clarendon and High streets, Cranbourne.

High Street is part of the South Gippsland Highway. Melway 133 K4.

Stall holders should book early as demand will be very high.

Reservations for stall holders may be made by contacting Dianne Jackson VK3JDI on (03) 5625 2545.

Doors open at8:30 AM. for stall holders and at10:00 AM for buyers $5 entry.

VK5

Adelaide Hills Amateur Radio Society

About 60 members attended the last meeting of AHARS, which is approaching the comfortable size of the current meeting hall. The society may be looking for larger premises during the year. Watch this space for further information. It was a particularly interesting meeting. There were two parts to the evening.

Food for dark matter thoughts

The first part was addressed by Alan VK5TC who presented the meeting with some food for thought about atoms, molecules and such deeper subjects as dark matter.

This dark matter, that has not yet been found, is thought must fill the universe to explain some anomalies in the universe that conflict with the inviolable speed of light and gravitational bending of light. Alan suggested that there might be other possibilities beside the dark matter capable of satisfying the observations.

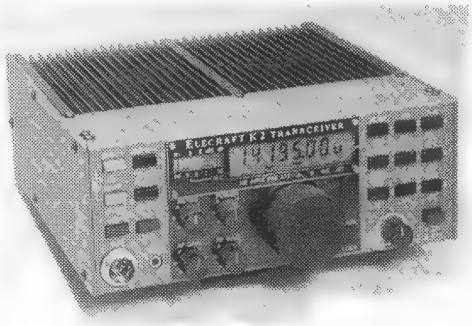
Food for more thought.

The second part of the evening was given over to a very professional demonstration by Hans VK5YX, of how he went about building up a transceiver from a kit.

All amateurs who have been involved with the hobby for a number of years will be familiar with the Heathkit name. Many have possibly built or tried to build or, maybe, bought a Heathkit item, but it is some years since Heathkit disappeared from the market.

Most of the kits that have filled the intervening years have been for small converters or antenna tuners or such like. There has not been anything as ambitious as a transceiver for us to build until the Elecraft K2 and K2/100 came into the market.

The Elecraft K2/100 (the extra takes the power up to the full 100 watts and all modes) claims to be easy to build (with which Hans will agree as long as you take great care and have a good magnifying lamp to hand).



Hans agrees very strongly with the claim that the kits are very well supported. Any queries are quickly attended to and any faulty parts immediately replaced. The kit comes with very clear instructions and illustrations. It should be built EXACTLY the way and in the order in which the instructions suggest.

Hans used a series of photographs of the construction as he went along which he showed as a "Photostory 3" presentation. He is a very neat worker. Few would be able to distinguish between Hans' construction and a factory made transceiver.

Apparently, the company which produces the Elecraft kits does have a number of authorised builders who will put your kit together if you decide on mature consideration that you have bitten off more than you can chew, but Hans says the satisfaction of your own work is worth the effort.

The transceiver works beautifully on all bands and in all modes. It took about two months to complete. The kits are not cheap but a factory unit with the same capabilities would be much more expensive, and, without the personal satisfaction.

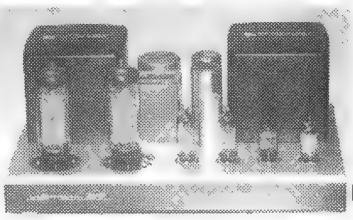
Meetings

AHARS meetings are held on the third Thursday of the month. If you are visiting Adelaide, contact the President, Jim VK5NB, QTHR, the callbook for more information.

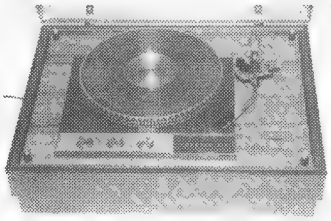
WANTED- OLD HI-FI

We buy old stereo equipment 1950 - 1980 working or not! Turntables, speakers & amplifiers by QUAD LEAK RADFORD TANNOY KEF LUXMAN ORTOFON LINN NAIM THORENS SPENDOR & more.

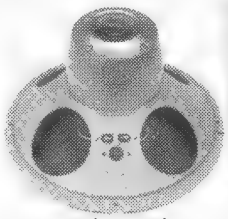
Camera Exchange (03) 9808-8811



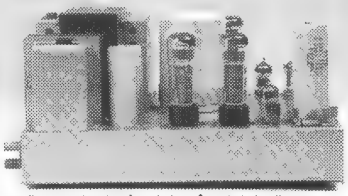
We buy single items or whole collections! Instant CA$H paid. We even pickup! Radio valves wanted- new & used. Call John 0418-313181



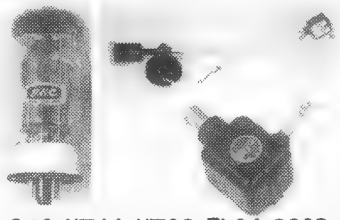
WE BUY TURNTABLES PAYING UP TO $1000+ FOR SOME MODELS



PAYING $500-$1000 FOR 1950s TANNOY SPEAKERS



PAYING $300-$1000 FOR LEAK & QUAD VALVE AMPS



2A3 KT66 KT88 EL34 300B ECC33 845 GZ32 45 VALVE ...WE PAY $20-$100 ***EACH***

News from VK7

VK7 News
Justin Giles-Clark, VK7TW
Email: vk7tw@wia.org.au Regional Web Site: reast.asn.au

Foundation Licencees Abound in VK7

A quick search of the ACMA radcomm database has revealed that VK7 now has at least 40 Foundation Licensees (FL). The radcomm database suggests there are 540 licensed VK7 amateurs once you remove the repeaters and beacons therefore FL account for 7.4% of VK7 amateurs. This is a fantastic result and all assessors and course helpers are to be congratulated!

Radio and Electronics Association of Southern Tasmania Inc.

The ATV experimenters group has been showing a series of radio related archival films from the 1930s & 40s on ATV from the Domain ATV Studio at the Wednesday ATV night at 7:30pm. We now have a club fox, thanks to a donation of a handheld by John VK7JK. This fox will be put to good use at the field weekend at the Lea scout camp on the 3-4 June 2006. The field weekend will focus is on portable and mobile operation of any mode of amateur radio and many excellent speakers are lined-up for the weekend. See you there.

Brian VK7RR and partner Sue VK7KSU were the first VK7s to attend the International DX Conference held in Visalia, California at the end of April and reported that over 700 amateurs attended this annual conference. Some of the impressive presentations included the Peter One and the Kure Island DXpeditions. Brian even got to operate the new Yaesu FTDX 9000, Icom IC7800 and FlexRadio black box transceivers.

The yes/no fox hunts are being run fortnightly again (from the 5th May) at 7:00pm VK7RAD, 146.700 MHz. The fox can only give yes/no answers to questions and the first to find the fox becomes the fox next time. The wintry months have seen coffee, cake or a meal after the hunt finishes. It's great fun, why not come along and try it!

Targa Tasmania 2006

Targa ran from 25 to 30 April and this year's communications team was probably the biggest ever. In total there were 65 radio operators, 18 were licensed amateurs, including 8 Foundation licensees, with help from many others. They covered 160 locations and deployed 30 repeaters over the event.

The age and gender balance changed with more younger people and an increasing number of females. The roll call of the Targa Comms class of 2006 is: VK7s – ARN, DG, DY, FABS, FAJM, FBCS, FRED, FRNJ, FTAA, FTML, FWJS, HAW, HSB, JGD, NXX, TRF, ZCR, ZRO and ZZ together with Damien, Terry, John, Lawrie, Victoria, Paul, Tanya, Marcia, Garry and Jeanette, Keith and Neville, Steve and Rhonda, Kerry and Helen, Andrew and Shelly, Robert, Paul, Anne, Scott and Darren and apologies to anyone I have missed.

BPL Interference Watch

Measurements have been taken within the BPL trial site in Burnie on the North West coast of Tasmania. This report shows a degradation of the noise floor in the trial areas from between 16dB (40 times higher) to 46dB (39,800 times higher) above the measured ambient noise floor (level). Take a look at the REAST BPL Watch page (http://reast.asn.au/vk7bplwatch.php) for more information.

Northern Tasmanian Amateur Radio Club

April 12 saw NTARC addressed by Phil VK7JJ and Jason VK7ZJA. Phil gave a great report on the Yaesu FT857D and Jason gave a great presentation on not 1 but 3 of his radios, a TS2000, the $20 special TS-430s and a Kenwood/Trio receiver. The lucky winner of the portable DVD player was Wayne VK7XGW. The 10th of May was a dinner meeting at Twiggs Restaurant, Riverside and the guest speaker was Mr Anthony Coote from Australian Customs. Anthony's talk was wonderful and gave us further insight into our hard working Customs Service.

North West Tasmania Amateur Radio Interest Group

Reminder of the Marconi Centenary Celebrations event from 12 - 16 July 2006 in Devonport. The committee has located the original spark transmitter and the Devonport Maritime Museum is being readied for the event. There will be an ARISS contact with Expedition 13 crew and Reece & Devonport High Schools. There will be displays, ATV, special event stations and much more.

The organising committee is also seeking any appropriate radio equipment and documentation for the event.

Contact Tony VK7AX on telephone: (03) 6425 2923 or email: nwtarig@spamex.com.

Silent key

Eddy (Ted) Burne VK7GB

Eddy or Ted Burne, late VK7GB, died in Hobart on 29th April, aged 93.

His first job was as assistant cinema projectionist in 1929 in Launceston. Eddy moved to Hobart and became projectionist at the Avalon cinema in Hobart in 1936.

During World War Two, he was in New Guinea with the army in the First Australian Broadcast Maintenance Section.

He returned to Avalon, and in the late 1950s moved into management.

After 47 years in the motion picture industry he retired in 1976.

Eddy used to attend the WIA meetings just around the corner in Liverpool St between spools in his theatre manager's dinner suit to donate theatre tickets to be raffled to aid club funds. Eddy obtained his amateur licence in 1947 and after constructing the equipment, first came on air in 1948. His main interest was in Morse operating. A true gentleman.

Vale Eddy.

(Charles VK7PP, Richard VK7RO and Phil VK7ZAX)

Robin Harwood VK7RH
vk7rh@wia.org.au

Of continents and islands

Sad news. An old friend departed English language broadcasting last month.

Radio HCJB in Quito, Ecuador ceased broadcasting in English on May 6th after 75 years of broadcasting. This station was one of the first shortwave signals I came across, some 50 years ago. It was also the first station that sent me a QSL card and it took a year for the round trip.

Spanish and indigenous language broadcasts are still aired on shortwave but the huge antennas at Pifo are being dismantled to make way for the new Quito Airport. English language broadcasts, of course, continue from sister station, HCJB-Australia in Kununurra WA.

The VOA transmitters in Kavala and Rhodes in Greece were also recently significantly downgraded and may have been taken over by the Greeks. I also note that Greek relays via VOA sites in the US also ceased around the same time. VOA News Now will also cease in October.

There has been recent trouble in the Solomon Islands, just near the eastern tip of Papua-Nuigini. Australian and NZ troops went there in late April to restore order after post election violence threatened to become all-out civil war. Law and order is now restored but tensions still remain volatile. You can easily hear the SIBC from Honiara on 5020 and between 1100 and 1900 this station relays the BBC World Service.

The nearby island nation of Vanuatu is heard on 3945 and 7260, the latter best heard before 0900 as this frequency is popular with other broadcasters. Programming is in English, French and a local language known as Bislama, which is almost identical to Tok Pisan in PNG.

As you are aware, the small Tasmanian town of Beaconsfield catapulted to the World Spotlight in late April - early May when three miners were trapped underground after a small earthquake. Sadly one of the three was killed in the rockfall and it was 5 days before they discovered that two of the surviving miners were still alive. Gladly they are now free.

It has been interesting to hear news reports of the Beaconsfield tragedy and rescue over many shortwave stations, in a variety of languages and dialects. My grandfather along with his father and uncle were employed in the original Beaconsfield Mine and their photos are in the Museum which adjoins today's Mine Complex. I still have many relatives within the area.

Well that is all for this month. Don't forget you can email me at vk7rh@wia.org.au or snail mail at 20/177 Penquite Road Norwood Tas 7250.

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• Hi-temp Teflon Coax • Flat Earth Braids
• 450 & 300 Ohm Twinfeeders • Dacron Uv Ropes
• Multi-core Control Cables • Mobile & Fixed Antennas – Cb & Amateur
• All Coax / Hardline Connectors • Dipole & Wire Antennas
• All Coaxial Adaptors • Lightning Protection & Earthing
• Hard & Soft Drawn, Copper Wires • Cable Assemblies
Prices inclusive of G.S.T.
END OF FINANCIAL YEAR SALE !
TIMES LMR400 $4.00/m
TIMES LMR600 $8.95/m
ARI RG59B/U $0.80/m
300 ohm Ladderline $1.00/m
450 ohm Ladderline from $2.00/m
8 Core Control/Rotator cable $2.50/m
3mm Dacron UV/Rot proof rope $0.80/m
5mm Dacron UV/Rot proof rope $1.00/m
Scotch 23 Self Amulgamating tape $20/roll
W2AU Hi Power Antenna Baluns from $45
ALL COAX CONNECTORS & ADAPTORS 10 TO 20 % OFF
YAESU ROTATOR SPECIALS
G450A - $599.00 G-800DXA - $950
G-5500 AZ/EL - $1195
20% OFF ALL MFJ STOCK
END OF FINANCIAL YEAR SALE !
ARI RG213/U MIL-C-17D $145.00/100m
ARI RG58C/U MIL-C-17D $42.00/100m
LDF5-50 7/8" HELIAX $8.50/m
LDF4-50 1/2" HELIAX $4.50/m
2.00mm HD COPPER WIRE $25/kg
1.60mm HD COPPER WIRE $25/kg
CRIMP KIT with coax cutter & stripper $145.00
ALL CRIMP TOOLS $40.00
COAX SEAL PUTTY $6.50/roll
Fiberglass 5/8W 146Mhz Mobile Ant. $18.00
Stainless 5/8W 146Mhz Mobile Antenna $40.00
Fiberglass 4.5db 70cm Mobile Antenna $12.00
Stainless 4.5db 70cm Mobile Antenna $15.00
All ANTENNA INSULATORS – 10% OFF
All FIXING ACCESSORIES – 10% OFF
ALL Cable Off Cuts – 50% OFF
Limited stocks on some items. These prices valid until JUNE 30 or while available !
HEIL MICROPHONES SALE
PROSET HC4 / HC5 - $269 NOW - $250.00
PROSET IC - $279 NOW - $260.00
PROSET PLUS - $369 NOW - $350.00
GOLDLINE GM4 & GM5 $269 NOW - $250.00
HM10 DUAL - $249 NOW - $230.00
HM10/5 - $169 NOW - $150.00
HM10/4 - $169 NOW - $150.00
FS2 PTT FOOTSWITCH $85 NOW - $80.00
HS2 PTT HANDSWITCH - $65 NOW - $60.00
TRAVELLER HEADSETS - $169 NOW - $160.00
ALL Adaptor Cables and Accessories Available.
AMERITRON LINEARS & RCS UNITS SALE
AL-811AX 600W - $1529
AL-811HX 800W - $1899
All Ameritron & Mirage Amplifiers to ORDER !
RCS4 4 Position Remote sw - $249 NOW $220
RCS-8VX 5 Position Remote sw $299 NOW $270
RCS-10VX 8 Position Remote sw $329 NOW $290
DAIWA SWR METERS – "SALE"
CN-101L HF/VHF - $209 NOW $185.00
CN-103L VHF/UHF - $209 NOW $185.00
CN-801H HF/VHF DELUXE - $279 NOW $250.00
CN-801V VHF/UHF DELUXE - $329 NOW $290.0
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PAY BY – MASTERCARD, VISA, BANKCARD
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Gridsquare Standings at 12 May 2006

144 MHz Terrestrial

VK2FLR	**Mike**	**113**
VK3NX	Charlie	104
VK2KU	Guy	102
VK3KAI	Peter	81
VK2ZAB	Gordon	78 SSB
VK2KU	Guy	69 SSB
VK3HZ	David	69
VK3CY	Des	68
VK3PY	Chas	68 SSB
VK2DVZ	Ross	63 SSB
VK2TK	John	62
VK3EK	Rob	62 SSB
VK3QM	David	56 SSB
VK2EI	Neil	54
VK3TMP	Max	53
VK7MO	Rex	53
VK3BJM	Barry	52 SSB
VK3BDL	Mike	51 SSB
VK3ZLS	Les	51 SSB
VK3KAI	Peter	48 SSB
VK2DXE	Alan	47
VK2KU	Guy	47 Digi
VK3WRE	Ralph	46 SSB
VK4TZL	Glenn	45
VK2DXE	Alan	43 SSB
VK3CAT	Tony	40
VK3KEG	Trevor	39
VK3KAI	Peter	36 Digi
VK2TK	John	35 SSB
VK4KZR	Rod	35
VK7MO	Rex	35 Digi
VK3ZUX	Denis	33 SSB
VK6HK	Don	33
VK7MO	Rex	33 SSB
VK3ZYC	Jim	31
VK4CDI	Phil	29
VK2KRR	Leigh	28 FM
VK3CJK	Chris	28 SSB
VK4CDI	Phil	28 SSB
VK2TK	John	27 Digi
VK2EAH	Andy	26
VK4DFE	Chris	26 SSB
VK5ACY	Bill	26 SSB
VK2TG	Bob	25 SSB
VK3BBB	Brian	25
ZL3TY	Bob	24
VK3DMW	Ken	23
VK3YB	Phil	23
VK3HV	George	21 SSB
VK1WJ	Waldis	20
VK3TLW	Mark	20 SSB
VK6KZ	Wally	20
VK3AL	Alan	18 SSB
VK3BG	Ed	17 SSB
VK6KZ/p	Wally	16
VK1WJ	Waldis	15 Digi
VK2EAH	Andy	15 SSB
VK3ZYC	Jim	14 SSB
VK4EME	Allan	14 Digi
VK3UDX	Geoff	13 SSB
VK2CZ	David	12
VK7ZSJ	Steve	12
VK2EAH	Andy	11 Digi
VK2EI	Neil	11 Digi
VK2DXE/p	Alan	10
VK3ANP	David	10
VK4EME	Allan	9 SSB
VK6DXI	Mirek	6
VK6HK	Don	6 Digi
VK1WJ	Waldis	5 SSB
VK2TWO	Andrew	5
VK3ZDR	David	5 SSB
VK2AKR	Neil	3 Digi
VK2DXE	Alan	3 Digi
VK4TJ	John	3 SSB
VK1WJ	Waldis	2 CW
VK2AKR	Neil	1 SSB
VK3QM	David	1 Digi
VK4CDI	Phil	1 Digi

144 MHz EME

VK2KU	**Guy**	**203**
ZL3TY	Bob	195
VK2KU	Guy	186 Digi
VK7MO	Rex	154 Digi
VK2FLR	Mike	120
VK3CY	Des	70 CW
VK2KU	Guy	39 CW
VK2KRR	Leigh	30
VK4CDI	Phil	16
VK3HZ	David	14
VK3NX	Charlie	5
VK3KEG	Trevor	4
VK2DVZ	Ross	2
VK2DXE	Alan	2
VK4EME	Allan	1 Digi

432 MHz Terrestrial

VK2ZAB	**Gordon**	**57 SSB**
VK3PY	Chas	50 SSB
VK3NX	Charlie	48
VK3QM	David	47 SSB
VK3ZLS	Les	40 SSB
VK2KU	Guy	38
VK2KU	Guy	34 SSB
VK3EK	Rob	34 SSB
VK3HZ	David	34
VK2DVZ	Ross	32 SSB
VK3BJM	Barry	32 SSB
VK3CY	Des	32
VK3KAI	Peter	29
VK3KAI	Peter	28 SSB
VK3BDL	Mike	27 SSB
VK3WRE	Ralph	26 SSB
VK3TMP	Max	25
VK3KEG	Trevor	21
VK2TK	John	18
VK7MO	Rex	18
VK2TK	John	17 SSB
VK3CAT	Tony	16
VK3ZUX	Denis	15 SSB
VK3BG	Ed	14 SSB
VK4KZR	Rod	14
VK3TLW	Mark	13 SSB
VK4TZL	Glenn	13
VK6KZ	Wally	13
VK2KRR	Leigh	11 FM
VK3UDX	Geoff	11 SSB
VK3AL	Alan	10 SSB
VK3ANP	David	10
VK3YB	Phil	10
VK2TG	Bob	9 SSB
VK3BBB	Brian	9
VK4DFE	Chris	9 SSB
VK3CJK	Chris	8 SSB
VK4CDI	Phil	8
VK6KZ/p	Wally	8
VK2FLR	Mike	6
VK6DXI	Mirek	6
VK7MO	Rex	6 Digi
VK2KU	Guy	5 Digi
VK3HV	George	5 SSB
VK3KAI	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK3ZYC	Jim	4 SSB
VK4EME	Allan	4 SSB
VK1WJ	Waldis	3 SSB
VK2CZ	David	3
VK2TWO	Andrew	3
VK2DXE/p	Alan	2
VK3DMW	Ken	2
VK4TJ	John	2 SSB
VK2AKR	Neil	1 SSB
VK2TK	John	1 Digi

432 MHz EME

VK4EME	**Allan**	**14 CW**
VK7MO	Rex	10
VK7MO	Rex	9 Digi
VK3NX	Charlie	5
VK3HZ	David	4
VK2KRR	Leigh	1

1296 MHz Terrestrial

VK3QM	**David**	**37 SSB**
VK3PY	Chas	36 SSB
VK3NX	Charlie	34
VK2ZAB	Gordon	29 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	25
VK2KU	Guy	22 SSB
VK3EK	Rob	20 SSB
VK3KAI	Peter	20
VK3KAI	Peter	19 SSB
VK3KWA	John	19
VK2DVZ	Ross	17 SSB
VK3WRE	Ralph	16 SSB
VK3BDL	Mike	12 SSB
VK3BJM	Barry	12 SSB
VK3HZ	David	11
VK3TMP	Max	11
VK2TK	John	10 SSB
VK4KZR	Rod	10
VK7MO	Rex	10
VK3BG	Ed	8 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3UDX	Geoff	6 SSB
VK4TZL	Glenn	6
VK2CZ	David	5
VK3HV	George	5 SSB
VK3ZUX	Denis	5 SSB
VK3ZYC	Jim	5
VK6KZ/p	Wally	5
VK2KRR	Leigh	4
VK3BVP	Shane	4
VK3YB	Phil	4
VK3ZYC	Jim	4 SSB
VK6KZ	Wally	4
VK2KU	Guy	3 Digi
VK3BBB	Brian	3
VK3KEG	Trevor	3
VK6DXI	Mirek	3
VK2DXE/p	Alan	2
VK2FLR	Mike	2
VK3CJK	Chris	2 SSB
VK3CY	Des	2
VK3KAI	Peter	2 Digi
VK3QM	David	2 Digi
VK4TJ	John	2 SSB
VK3DMW	Ken	1
VK3ZYC	Jim	1 Digi
VK7MO	Rex	1 Digi

1296 MHz EME

VK7MO	**Rex**	**10**
VK7MO	Rex	9 Digi

2.4 GHz

VK3PY	**Chas**	**14 SSB**
VK3QM	David	14 SSB
VK3NX	Charlie	11
VK3WRE	Ralph	9 SSB
VK3KAI	Peter	7 SSB
VK3EK	Rob	5 SSB
VK3HV	George	4 SSB
VK3HZ	David	4
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK3KAI	Peter	2 Digi
VK4KZR	Rod	2
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB
VK4TZL	Glenn	1

3.4 GHz

VK3NX	**Charlie**	**11**
VK3QM	David	9 SSB
VK3KAI	Peter	6 SSB
VK3WRE	Ralph	6 SSB
VK3HV	George	4 SSB
VK6KZ	Wally	4
VK3EK	Rob	3 SSB

5.7 GHz

VK3NX	**Charlie**	**12**
VK3WRE	Ralph	9 SSB
VK3QM	David	8 SSB
VK3KAI	Peter	7 SSB
VK6KZ	Wally	4
VK3BJM	Barry	2 SSB
VK3EK	Rob	2
VK3HV	George	2 SSB
VK3KAI	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK3ZUX	Denis	1 SSB

10 GHz

VK3NX	**Charlie**	**11**
VK3QM	David	11 SSB
VK3KAI	Peter	9 SSB
VK3PY	Chas	9 SSB
VK6BHT	Neil	9 SSB
VK3WRE	Ralph	8 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	5
VK3HV	George	4 SSB
VK3HZ	David	4
VK3TLW	Mark	3 SSB
VK3ZYC	Jim	3 SSB
VK5ACY	Bill	3 SSB
VK2EI	Neil	2 SSB
VK3BJM	Barry	2 SSB
VK3DMW	Ken	2
VK3ZUX	Denis	2 SSB
VK7MO	Rex	2
VK3BG	Ed	1 SSB
VK4KZR	Rod	1
VK4TZL	Glenn	1

24 GHz

VK6BHT	**Neil**	**3 SSB**
VK2EI	Neil	2 SSB
VK3NX	Charlie	2
VK6KZ	Wally	2

474 THz

VK3CJK	**Chris**	**2**
VK7MO	Rex	1

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@clearmail.com.au, or by mail (QTHR 2005).
The guidelines (and the latest League Table) are also available on the website of the NSW VHF Dx Group at
www.vhfdx.radiocorner.net - click on Gridsquares.
Next update of this table will be in early August 2006.
Stations who do not confirm their status for more than 12 months may be dropped from the table.

Contests

Ian Godsil VK3JS
Contest Manager

Contest Calendar June - August 2006

June	10	ANARTS WW RTTY Contest (Digi)	
	10	Portugal Day DX Contest	(SSB)
	10/11	South America CW Contest	
	10	Asia-Pacific Sprint Contest	(SSB)
	17/18	All Asian DX Contest	(CW)
	24/25	Marconi Memorial HF Contest	(CW)
July	1	NZART Memorial Contest	(CW/SSB)
	1	Canada Day Contest	
	8	VK/trans-Tasman 160 Metres Phone Contest	
	8/9	IARU HF World Championship	(CW/SSB)
	15/16	CQ WW VHF Contest	(All modes)
	15/16	Seanet Contest	(All Modes)
	15	Jack Files Memorial Contest	(CW/SSB)
	22	VK/trans-Tasman 160 Metres CW Contest	
	29	Waitakere (NZART) Sprint	(SSB)
Aug	5	QRP Day Contest	(CW/SSB/FM/PSK31)
	9	TARA Grid Dip (PSK/RTTY)	
	5	Waitakere (NZART) Sprint	(CW)
	5/6	10-10 Intl QSO Party (SSB)	
	12/13	Remembrance Day Contest	(CW/SSB/FM)
	19/20	Keymen's Club of Japan Contest	(CW)
	19/20	SEANET Contest	(CW/SSB)
	26	ALARA Contest	(CW/SSB)
	26/27	TOEC WW Grid Contest	(CW)
	26/27	YO DX HF Contest	(CW/SSB)

Greetings to All Readers

Thanks All

Before I continue with my series aimed at newer contesters, please let me say a most sincere thank you to all of you who have supported our contests so far this year. At time of writing we have had the John Moyle, QRP Hours and Harry Angel Sprint.

All of these were well supported, including several F-calls who did very well for themselves.

The comments were most positive, especially on the idea of sprint-style events. This may need careful thought amongst the planners of contests. Anyway, thank you all very much indeed.

A Question

It has been traditional to exchange an RS(T) report and Serial Number in a contest exchange. With the emergence of contest loggers it has become the norm to give 59(9) automatically irrespective of received conditions. Whilst some of us do not actually like this, it has become the norm and I suggest it will not now change unless the rules require it – even then most would not take any notice!

I pose the question—is it time to remove the RS(T) requirement from VK contests? It was been done in the QRP Hours contest in April. I propose that it be done in the RD this year. Any comments welcome.

Now my thoughts to encourage contest participation. Hope you find them useful.

The Quest for Idealism

Part Two: Ethics – Working In the Spirit of the Contest

In Part One last month, I touched on some of the things we need to do in order to set up for taking part in contests. Whilst I admit that much of what I wrote would be obvious, nevertheless I hope that some of you had some fresh ideas about shack layout. This month I want to look at the ethics of some modern contesting practices.

What does ethics or morality have to do with Amateur Radio contests you ask? Well, there is a certain degree of trust involved in entering a contest – and when trust enters ink, so do honesty and dishonesty. Fortunately, I believe that the level of dishonesty is very, very small; but

it can be there. An example – there have been times when operators have taken part in world-wide contests and claimed to be operating from rare DX locations; but subsequent investigations have shown that no DXpedition was authorised or in place at the time (the ARRL keeps track of who goes where in the DX stakes).

This means that someone operated, probably with a very strong signal and using a callsign illegal to that operator, but was possibly a legal callsign being used without the owner's knowledge or permission. Subsequently the logs of everyone who worked that station have to be found, rescored and the results list recalculated – a big job, but fortunately one made easier today by computerised log-checking abilities.

As I said, this is rare, but it can happen.

Portable Operation

We all know that "portable" means being carried about, therefore in AR slang we take it to mean that we have taken our rigs, antennas and necessary gear to a place other than home, set it up and operated it for a special purpose – contest, DXpedition, holiday, etc.

Figs 2 and 3 in last month's column were suggestions how to do this. Yet Fig.2, "The Backyard Operator", is considered unethical by some people. Why?

The grounds for dispute are not that the gear has been carried and set up, but that it has been done close enough to the home shack to be able to use the home antenna system, especially if you are fortunate enough to have beams.

We all know that the better our antennas the better our signals and therefore chances of making higher numbers of QSOs and points.

But purists say that this method of antenna connection is not "in the spirit of the contest", therefore you have acted unethically.

"In the Spirit of the Contest"

This phrase is one that is usually on the Summary Sheet of your entry and by signing your log you agree that you have operated sensibly and correctly and observed the rules and radio regulations.

Like so many things today it is easy to blur the lines of what is strictly "in the spirit of the contest" or outside it -- what is ethical or unethical. Modern technology is causing this, rather than deliberate operator practices.

Loggers

An example of the above – most contesters now use a computer logging program. In fact the big world-wide (WW) events require that this be so.

Most people probably don't see the use of an electronic recording medium as a great issue – it is fast, can maintain any number of QSOs, calculate score, keep track of dupes and finally print your log for posting or email presentation.

Very neat, very useful, very compact (more next month).

All you need to be able to do is to type as fast as possible. Shouldn't we all be taking advantage of increasing technology as interested and progressive amateurs? Yes indeed, so where's the problem?

The problem for the purist seems to lie in the program's ability to send CW calls and exchanges on behalf of the operator. For these CW operators it is possible to make and log a complete contact by pressing just three buttons on your keyboard (apart from typing in the other operator's callsign).

Automated systems like this make for much faster speeds and therefore more QSOs per hour. Certainly you need to be able to read callsigns and numbers at speeds between 35 – 45 wpm: this seems fast, but please believe me that it is easily achievable with regular, serious practice. No, you could not carry on a chat at those speeds, but recognizing a few specific characters is not so hard.

Leaving all that aside, the purists argue that this is not Amateur Radio – there has been no personal involvement in controlling that exchange beyond typing in the callsign. The machine has done the work, therefore "not in the spirit of the contest".

This means we have a situation where you may agree with the argument, but if you want to do well in a CW contest you will ignore it. If everyone ignores the argument and uses modern technology, then it becomes acceptable at large. However, even if something becomes acceptable, the actual basis, if wrong, has not gone away, so the argument remains. This same idea applies to licensing reforms as well as to a range of social issues in our Australian community.

Scoring Systems

Methods of scoring can be a ground for complaints of biased practices – certain areas or types of operators feel discriminated against. Often these are grounds for criticism and the wise Contest Manager will work to overcome such difficulties.

Massaging the Log

Some operators go over their logs after a contest and make changes in the hope of gaining a few extra points. Known as "massaging", this is universally held not to be in the spirit of the contest. What you have done is what you submit.

I feel that to look over a log in search of callsign typing errors is not unreasonable. How easy it is to mis-stroke a key, eg the absence of the "V" in VK3JS could tell the program that you worked an American station when you only worked a local.

The points would be different, so fixing this genuine mistake and rescoring the log may be unethical, but could save loss of points imposed by the Contest Manager as a penalty.

Summary

All through life there would be none of us who has lived by the letter of the law at all times. If we had, there would have been little technical progress over the years.

So whilst I do not advocate blatant disregard of the rules of the contest, I do have to agree that the majority of contesters accept certain ways of operating, therefore there is little point in beating our heads against them. We join them and do the best that we can.

Next month: Thoughts on a Range of Contesting Practices.

73 and good contesting,
Ian Godsil VK3JS

ar

Results CQ WW RTTY Contest 2005

Sect	Call	Score
SOAB Low Pwr	VK3KE	138,600
	VK3FM	47,376
	VK2GR	28,296
	VK6HZ	12,844
SOAB High Pwr	VK2NU	62,640
SO 20M	VK6APW	3,952

Jack Files Contest 2006

John Spooner VK4AJS
Contest Manager

15th July, 2006 0800 – 1400 UTC

This contest is in honour of the late Jack Files, a long-serving VK4 WIA councillor. It is coordinated by the Queensland Advisory Committee and is sponsored by the WIA.

Since the dissolution of the WIA Divisions and a national body now existing, it has been decided to make this contest a national remembrance of an amateur who gave long service not only to benefit Queensland amateurs, but who was an asset to all amateurs within Australia.

A slight change of the rules to this year's contest has been implemented to open this event up to all VK Amateurs. The object is still to work as many different stations in different Queensland shires and towns for the purpose of multipliers, but in addition, all participants will be able to count the first contact of each VK state or territory worked in each one hour block of the contest as a multiplier.

Provision will also be made for the working of the same station within the same one hour block if either of the stations is mobile and is passing through different shires, towns, states or territories. It is very important that VK4 stations give their shire codes with the report and number given -- eg an amateur in Livingstone Shire would give out 59001LV. Shire Codes will be published and are available from the Contest Manager.

Object is to work as many other amateur stations, particularly as many different VK4 shires and towns, and as many different states and territories as possible within each one hour block of the contest.

Date: Saturday, 15th of July, 2006

Time: 0800UTC - 1400UTC in six one-hour blocks for the purpose of duplicate contacts.

Band: 80 metres only. Use 3.5MHZ - 3.7MHz to put all licence grades on an equal footing.

Modes: Either CW; SSB; PSK31, or All Modes

Categories: Single Operator; Club Station (each category can be a mobile station)

Exchange: Non-VK4 stations will send RS(T) plus serial number starting at 001 and incrementing by one for each contact. VK4 stations will send RS(T), serial number and two-letter shire code for purposes of multipliers.

Score: One point per contact

Multipliers: Each VK4 Shire counts as a multiplier only once over the entire duration of the contest. All participants may also count the first contact in each state or territory as a multiplier and these may be counted within each one-hour block of the contest.

Final Score is total QSO points X total number of multipliers.

Repeat Contacts: In order to make best use of the band, stations may be contacted once in each hour on each mode. Repeat contacts with stations may be counted within the same one-hour block only if the station is mobile and crosses from different shires, towns, states or territories to another. All repeat contacts must not be consecutive.

Logs must show full details of all QSOs and must be accompanied by a Summary Sheet showing operator's name; address; callsign; category and mode entered; claimed score and a declaration that the rules and spirit of the contest were observed.

Send logs by mail: to Jack Files Contest Manager, 26 Kerr St. Park Avenue Nth. Rockhampton QLD., 4701.

Send Logs by email: in text format to: vk4ajs@wia.org.au

Closing date for all entries is 12th August, 2006

Certificates will be awarded to the top scorers in each mode in each VK State, ZL, P29 and any DX country (i.e. country outside VK, ZL or P29). As well there will be a certificate awarded to the overall highest scorer who will be declared overall contest winner. The only stipulation is that the overall winning operator must be a VK amateur.

VK4 City/Town/Shire Codes

AC Aramac; AN Arakun (R); AT Atherton;

BA Banana; BB Badu Island; BC Barcaldine; BD Bendemere; BE Burnett; BF Boigu Island; BG Biggenden; BH Bauhinia; BI Bungil; BJ Bamaga; BK Burdekin; BL Balonne; BN Brisbane; BO Barcoo; BP Bulloo; BQ Booringa; BR Burke; BS Broadsound; BT Beaudesert; BU Bundaberg; BV Boonah; BW Bowen; BX Blackall; BY Belyando; BZ Boulia.

CA Caloundra; CB Caboolture; CD Cardwell; CF Clifton; CG Cherbourg; CH Chinchilla; CK Cook; CL Calliope; CM Cambooya; CN Crows Nest; CO Cooloola; CP Carpentaria; CR Croyden; CS Cairns; CT Charters Towers; CY Cloncurry;

DA Dauan Island; DG Douglas; DI Diamantina; DL Dalrymple; DO Doomagee; DU Duringa; DY Dalby;

EA Eacham; ED Eidsvold; EK Esk; EM Emerald; ER Erub Island; ET Etheridge.

FL Flinders; FZ Fitzroy.

GA Gatton; GC Gold Coast; GD Gladstone GH Gayndah; GI Goondiwindi

HA Hammond Island; HB Hervey Bay; HK Hinchinbrook; HT Herberton; HV Hope Vale.

IA Iama; IC Infracombe; IF Isisford; IJ Injinoo; IN Inglewood; IP Ipswich; IS Isis

JE Jericho; JO Johnstone; JY Jondaryan.

KC Kilcoy; KG Kingaroy; KK Kilkivan; KO Kolan; KU Kubin Island; KY Kowanyama Island.

LA Laidley; LC Logan; LH Lockhart River; LO Longreach; LV Livingstone.

MA Mareeba; MB Maryborough; MC Mackay; MD Mabuiag Island; ME Mer Island; MG Mornington; MH Murweh; MI Mt. Isa; MK McKinlay; ML Milmerran; MM Mt. Morgan; MN Mirani; MO Mapoon; MR Maroochy; MT Monto; MU Mundubbera; MV Miriam Vale; MX Murilla; MY Murgon.

NA Napranum; NE Nebo; NN Nanango; NO Noosa; NP New Mapoon.

PA Paroo; PD Peak Downs; PL Palm Island; PO Pormpuraaw; PR Pine River; PT Pittsworth; PU Poruma; PY Perry.

QL Quilpie.

RC Redcliffe; RD Redland; RH Rockhampton; RI Richmond; RM Roma; RO Rosalie.

SA Sarina; SB Saibai Island; SE Seisia Island; SP St. Pauls Island; ST Stanhope.

TA Tara; TB Tambo; TE Torres; TG Thuringowa; TI Tiaro; TM Taroom; TY Townsville; TW Toowoomba.

UG Ugar Island; UM Umagico.

WA Warwick; WB Warraber; WC Woocoo; WD Wondai; WG Waggamba; WH Whitsunday; WI Winton; WO Wambo; WR Warroo; WU Wujal Wujal.

YA Yarrabah; YO Yolke Island.

Contests continues over page

John Moyle Memorial National Field Day 2006 – Results

24 hour Portable Operation Multiple Operators

Call Sign	Operators	Mode	Band	Score	Contacts	Award
VK3CNE	Multi	All	All	6186	762	*
VK2SRC	Multi	PHONE	ALL	4282	331	*
VK3ER	Multi	ALL	ALL	3570	151	*
VK3TDV	Multi	PHONE	VHF	3250	198	*
VK5SR	Multi	PHONE	ALL	3022	235	*
VK5BP	Multi	PHONE	ALL	2772	276	*
VK2HZ	Multi	PHONE	ALL	2368	268	
VK3FRC	Multi	PHONE	VHF	2238	113	*
VK2EH	Multi	PHONE	ALL	1630	80	
VK4YZ	Multi	PHONE	HF	1516	758	*
VK4BAR	Multi	PHONE	ALL	1408	329	
VK4WID	Multi	PHONE	ALL	1400	246	
VK4WIL	Multi	PHONE	ALL	1272	342	
VK4WAT	Multi	PHONE	ALL	1211	383	
VK5ARC	Multi	PHONE	ALL	1026	167	
VK4QD	Multi	PHONE	ALL	984	480	
VK2ATZ	Multi	ALL	HF	854	427	*
VK5CTY	Multi	PHONE	HF	614	307	*
VK2ADX	Multi	PHONE	HF	572	294	*
VK3BI	Multi	PHONE	ALL	340	65	
VK4KKN	Multi	PHONE	ALL	326	119	
VK3III	Multi	PHONE	ALL	274	137	
VK8DA	Multi	ALL	ALL	212	106	*
VK3FPJ	Multi	ALL	HF	170	84	
VK7OTC	Multi	PHONE	ALL	160	80	
VK1YBQ	Multi	PHONE	HF	124	62	

24 hour Portable Operation Single Operator

Call Sign	Operators	Mode	Band	Score	Contacts	Award
VK4OE	Single	Phone	All	2512	100	*
VK2KWM	Single	Phone	All	1276	85	*
VK2TLG	Single	Phone	HF	414	212	*
VK2WG	Single	Phone	All	354	177	*
VK5NJ	Single	CW	All	312	37	** *
VK2FOZI	Single	Phone	HF	228	114	*
VK6SCS	Single	Phone	HF	196	98	*
VK2UQ	Single	CW	HF	136	68	*
VK3JS	Single	CW	All	102	51	*
VK4RC	Single	CW	HF	90	45	*
VK2FLKN	Single	Phone	HF	42	21	*
VK4EV	Single	Phone	HF	30	15	
VK2KXN	Single	Phone	HF	26	13	

6 hour Portable Operation Multiple Operators

Call Sign	Operators	Mode	Band	Score	Contacts	Award
VK3AXH	Multi	Phone	VHF	1400	74	*
VK2BOR	Multi	Phone	ALL	664	98	*
VK2FFG	Multi	Phone	ALL	512	177	*
VK8AR	Multi	Phone	HF	254	127	*

6 hour Portable Operation Single Operators

Call Sign	Operators	Mode	Band	Score	Contacts	Award
VK3ZPF	Single	Phone	VHF	1620	152	*
VK4TGL	Single	Phone	ALL	434	38	*
VK5HJH	Single	Phone	VHF	296	38	*
VK5ZKT	Single	Phone	HF	212	106	*
VK5LZ	Single	Phone	ALL	188	51	*
VK2IO	Single	Phone	ALL	134	63	*
VK5OQ	Single	Phone	ALL	122	49	
VK5MH	Single	Phone	HF	114	57	*
VK4FVC	Single	Phone	HF	112	56	*
VK2AKB	Single	Phone	ALL	102	51	
AX8AA	Single	Phone	HF	80	40	
VK2IRP	Single	Phone	HF	78	39	
VK5UE	Single	Phone	VHF	26	13	
VK2EHQ	Single	Phone	ALL	20	10	

Home Station 24 hours

Call Sign	Operators	Mode	Band	Score	Contacts	Award
VK2HBG	Home			395	256	*
VK3HAG	Home			144	86	*
VK4HTM	Home			104	59	*
VK4KLM	Home			100	50	
VK3BGH	Home			83	51	
VK2ZQX	Home			64	36	
VK5ZKT	Home			44	26	
VK6WB	Home			37	23	
VK5ATQ	Home			34	20	
VK5NY	Home			30	22	

Home Station 6 hours

Call Sign	Operators	Mode	Band	Score	Contacts	Award
VK3UDX	Home			214	143	*
VK3BNC	Home			139	87	*
VK7HAY	Home			101	73	*
VK2ZEN	Home			80	57	
VK2JAM	Home			66	37	
VK3EOD	Home			65	42	
VK2ZNF	Home			44	22	
VK4DFG	Home			38	22	

* Certificate Awarded

** President's Cup

Comments on John Moyle Memorial National Field Day 2006

Denis Johnstone (VK3ZUX)
Contest Manager

Entries came from every Australian mainland call area and Tasmania but none from ZL. If any are missing they are completely lost and I can only offer my apologies. I believe that all logs submitted are included in the scoring.

There were 10,447 contacts amounting to 58,164 points claimed.This heavy contesting only resulted in 75 logs being submitted. Stations bothering to go out and set up as portable and then submitting no log is a disappointment. A little extra effort next year perhaps? Some multiple operators got very big scores and perhaps a revision of the rules for large club stations is worth considering.

More than half of the portable stations that sent in a log got a certificate. People who 'went portable' should be acknowledged. Perhaps the rules need a revision to reward such effort?

Only two Foundation Licence operators submitted a log, despite many more logged during the contest. Perhaps they can be better advised next year? Both were awarded a certificate.

Activity occurred on all bands permitted by the rules. There was increased activity on HF, with frequencies following the declining sunspot cycle. The cycle is very close to the bottom, conditions should improve substantially next year. In the higher Microwave bands there was very limited activity, maybe it follows a weather cycle, rather than the solar cycle? VHF and UHF activity hardly altered, with the higher scoring reflecting the higher points allowed for increased numbers of longer distance contacts.

Participation across the various Call Areas was patchy. Perhaps the weather was an explanation of the poor turn out of portable stations in VK3 and the much improved turn out in VK2 & VK4.

The scoring on VHF may need further revision as the scores produced on VHF exceed the scores on HF, where the effort required to get a high score far out-weighs the comparative effort on VHF. However, this is not the nature of contesting where HF takes time and effort to work the number of stations required, while VHF and UHF requires the vagaries of weak signals to guarantee a contact.

Many more electronic logs were submitted this year, due largely to the excellent work by Mike Subocz (VK3AVV) and his program VKCL (VK Contest Log). Logs in the VKCL export format were extremely easy to work with. Those who simply forwarded the text output of VKCL were also rather simpler to work with than a paper log by hand.

There were still some who submitted their log in PDF, while this can be treated as text, it cannot be manipulated electronically and was as hard as hand written text to use. Finally there were a few who sent a log submission in an electronically unreadable form and they were asked to resubmit their logs.

Next year, the rules will have EXCEL as the preferred submission format. A sample linked EXCEL logging report was prepared and sent to those who requested this file. Many logs used this easy-to-use sample as the basis of their submission. (Contact me at vk3zux@hotmail.com if you would like a copy of my linked spreadsheet in EXCEL for next year.) Other suitable file submission formats are WORD or the ADI output file from VK Contest Log. Text files or paper files can also be used.

Well done to all participants and very well done those who bothered to submit a log. It is hoped that the number of logs to be submitted next year will continue the current trend of increased log numbers.

ar

N.Z.A.R.T. Memorial Contest

Saturday, 1st July 0800 – 1400 UTC

To commemorate those from our ranks who lost their lives in World War 2.

When: First Saturday evening in July. Six operating periods of one hour each from 0800 – 1400 UTC (8.00 pm to 2 am Sunday NZT).

1. Usual contest rules apply.
2. Single operator stations on 80 metre band.
3. A station may be contacted twice during each operating period – once on phone and once on CW provided that such contacts are not consecutive.
4. Mobile operation is permitted.
5. **Cypher System**:
   Cyphers must be exchanged and acknowledged before points may be claimed for a contact. The cypher will consist of the RS(T) followed by a serial number starting at any number between 001 and 300 for the first contact and incrementing by one for each successive contact. eg if the first number is 599007, the next contact will be 599008 etc.

6. Scoring

Phone. One point per phone QSO

CW. Two points per CW QSO

Multiplier. The multiplier is one for each new prefix worked on phone and one for each new prefix on CW.

Total Score

Multiply the total of phone and CW contact points by the multiplier. EG. for 100 phone QSOs with ZL1,2,3 and 4, the score is 100 x 4 = 400. For 100 phone QSOs with ZL1-4 and 50 CW QSOs with ZL1-4, VK1-3, W7, the score is (100 + 100) x 8 = 1600.

7. Logs.

The official log sheets available from the NZART Business Manager are the preferred log sheets. Logs must show contacts in correct order of time. Do not group all ZL1, ZL2, ZL3 etc. contacts together.

8. Summary.

A separate summary sheet must be completed and attached to the log sheets. This must show the following:-

(a) Callsign of station and NZART Branch of which a member.

(b) Name and full address of operator.

(c) Section in which competing:

(i) Open phone & CW (Memorial Trophy).

(ii) Open CW only (Auckland CW Cup).

(iii) 'Beginners' CW only (Laing-Smith Cup). Competitors in this section must state the number of their operator certificate and the date of issue.

(iv) Low power phone and CW (Mannell Trophy).

(v) Home made SSB equipment (Brother John Rodgers Plaque).

(vi) Phone only (Phil Armstrong Plaque).

(vii) Listeners section. Rules as for the transmitting sections except that only the cypher sent by that station heard should be given. The callsign of station heard and station 'worked' to be stated.

(vii) Australian section. Rules as for the Open section.

(d) Brief description of equipment used and power output.

(e) Points summary (insert 0 where mode not used).

Contacts Points

Phone	X 1 =
CW	X 2 =
Total	Phone + Cw

Number Of Prefixes Attach List Of Prefixes

Contact Points Prefixes Total

Total Score X

(f) Signed declaration that the contest rules and Radio Regulations have been observed.

9. Submission:

All logs to be sent to 'Memorial Contest Log', Win Gilbert ZL2GI, 146 Liverton Road, Lower Hutt 6009 New Zealand, to arrive no later than four weeks after the contest date. All email enquiries and electronic submission — Win Gilbert at wgilbert@actrix.gen.nz

DX - News and views

John Bazley VK4OQ,
P.O. Box 7665, Toowoomba Mail Centre, QLD 4352.
E-Mail --- john.bazley@bigpond.com

Andaman amazingly active, Aves also

The last few weeks have been amazing from a rare DX point of view. I can never remember so many stations on the air at the same time from a country that has been high on the overall wanted list for so long. The country of course – The Andaman Islands. Bernie, of The Daily DX, has set up a web page covering log search facilities for a number of the stations that were active from VU4 http://www.dailydx.com/vu4.htm. Looking to the future it will be interesting to see if NIAR can arrange a similar type of operation for VU7 some time in the near future.

We have also had operations from Aves Island, S0IR and J5. As most DXers know YV5LIX, Jose "Joe" Manuel Valdes Rodriguez, died during the Aves Island Dxpedition of a heart attack on April 21. He was 57. A ham since 1987, YV5LIX was well known around the world as a DXer and contester on HF and VHF. After about 16 hours off the air, the operation restarted using the callsign YX0LIX in memory of Jose. Our sympathies go to his family.

The special call VI9NI will be activated from Norfolk Island on the 25th May until the 24th June to coincide with the 150th anniversary of the landing of the Bounty Mutineers.

The operation is organised by the Oceania DX Group and will include the following operators; VE7NS, ZL2IFB, VK2BAA, VK4AN, VK4DV, VK5PO and VK4FW. The group plan to be active on SSB – CW – and RTTY. Look for them on CW (1822, 3523, 7023, 10103, 14023, 18073, 21023, 24893, 28023 and 50125 kHz).On SSB (1822, 3785, 7093, 14195, 18140, 21 24940, 28475 and 50125 kHz) and on RTTY (10103, 14084, 21084 and 28084 kHz) QSL via VK4FW.

For those readers who still would like to join a Dxpedition the following may be of interest. ZS6WB, Hal, reports:-

"A C9 DXpedition will be operating from the beach resort town of Bilene, north of Maputo, from 29th June to 13th July. Antennas will be available for all HF bands from 160 to 10 meters with Yagis for the higher bands. It is planned to operate all modes on HF. During the weekend of the 8-9 July the team will operate in the IARU HF Contest. There are still openings for additional operators who are invited to contact K5LBU for additional information. Additional information is available at http://www.tdxs.net/C9.html.

The following operations have been approved for DXCC credit: Iraq, YI9AQ, current operation effective September 21, 2004; Comoros, D6/WB4MBU, operation from May 24, 2001 to October 27, 2001; Comoros, D68JC, operation from October 23, 2001 to November 8, 2001; and Timor-Leste, 4W2AQ, operation from June 18, 2003 to December 17, 2003.

The following are some of the operations planned for the current period.

JW4GHA (Roger-LA4GHA), will be active until 1 July on all bands,CW, digital and SSB. QSL via home call or via the bureau.

VQ9LA (Larry-N0QM) continues to be active on 160 to 10 and will be there until July 2006. QSL either via the bureau or his home call.

6W2/F6ELE (Fidier) plans to operate on the HF bands occasionally during his stay between 9 and19 June. QSL via his home call.

V73CS (Steve-N4TKP) will be active until 1 August 2006 QSL via N3SL.

P29VV (Willemsen-PA3EXX - VK4WWI), will be active from 16 –19 June 40 to 10m, on SSB and CW.

9Q/ON7KEC (Luc),plans to be active in spots on the HF bands from 1 April until 31 July QSL via his home call

JA3EGZ, Mega, and **JA3DFM, Yoko,** from the Himeji Amateur Radio Club and the JARL Kobe Club respectively, expect to be on the air from Kota Kinabaru, East Malaysia, between July 7th and 10th. They will sign 9M6/JA3EGZ and 9M6/JA3DFM. They hope to operate on 80-6M SSB and CW, but no digital modes. They will be active in the IARU HF World Championship event signing 9M6/JA3EGZ, all band, mixed mode, multioperator. Target frequencies, 3510, 7010, 14015, 21015 and 28015 on CW; 7088, 14170, 14250, 21270 and 28515 phone. QSL via JA3EGZ, P.O. Box 6, Himeji, Japan or via the bureau.

VK4VB, Ralph, says, "Looks like I'll be returning to 5H for a few years." Ralph holds the Tanzanian callsign 5H3RK and is now starting to put his gear together. The last time he was there he was very active on several of the HF bands.

Prince Edward Island **(NA-029) VY2/VE3ZZ (Gregg)**, is planning a trip there from 26th July until 31st July and will be participating in the IOTA Contest. QSL to his home call please.

Several operations are planned to Haiti in the coming months.

HH/PS7EB (Glauber) will be using an IC 746 and vertical antennas between the 19th May and 25th November. The emphasis will be on the HF bands using CW, digital and SSB. QSL via his home call -- Glauber Fernandes, PO Box 251, 59010-970 – Natal-RN, Brazil.

Ned, N4LS reports he will be active as HH4/N4LS from northern Haiti from the 1st June until the 8th June. He plans to operate SSB and CW on 80-10 metres during his spare time.

HH/ PY1ZV will be active from Port-au-Prince, Haiti (NA-096) from 31 May to 8 June. He plans to operate on 80-10 metres in his spare time. Fabio works for the Brazilian Army and has joined the Brazilian military forces involved in MINUSTAH, the United Nations Stabilization Mission in Haiti.

After that, Fabio will most likely be going to Curacao (SA-006) and using the callsign PJ2/PY1ZV from the 10th June until 14th June. For both operations please QSL via PY4KL.

Good luck in the pile-ups until next month.

Special thanks to the authors of *The Daily DX (W3UR), 425 Dx News (I1JQJ) and QTC DX PY2AA* for information appearing in this month's DX News & Views.

For interested readers you can obtain from W3UR a free two week trial from www.dailydx.com/order.htm

Christine Taylor VK5CTY

ALARA AGM

ALARA held the AGM on the air on Monday 1st May. There were 13 stations heard (and possibly as many listening on the side). We are always pleased to have more stations on the air for our AGM than for a normal Monday night Net. No-one is afraid of being 'dobbed in' at our AGM; all names are submitted well in advance. Perhaps that is why we are not afraid to be heard!

Marilyn VK3DMS is our new President, standing in for just one year to give Bev VK6DE time to have her aerials up and going at her new location. We look forward to a good year and to having Bev in the chair next year. Bev is currently our 1st Vice-President.

We have two 2nd Vice Presidents to cover the possibility that one of them may not be able to take the position because of family commitments, Shirley VK5JSH and Susan VK7LUV.

Our new Secretary will be Susan VK7LUV, Margaret VK4AOE will continue as Treasurer and Souvenir Custodian, and Bron VK3DYF will continue as Minute Secretary.

Most of the other positions will be filled as they were last year. The full list is in the ALARA Newsletter.

We wish them all well and thank them for their service to our association.

If, at any time, you would like to help out in any capacity but you don't have anyone near you to nominate you, please let us know. Like all organisations, we like to have new blood to mix with the 'old timers'. This is what keeps us on our toes and will help us to go forward.

ALARA, with members scattered across this vast continent, is unique, but the situation does have its problems. So please, offer to help. We need you all.

YLs Participate in a DX Station

Evelyne F5RPB, whom many of us met in Murray Bridge, was invited by the Council of Europe to activate a special event station as part of the International Day of the YL, on March 10th and 11th.

To assist her she called on Anne Marie DJ0FR and Olga DJ0MCL, and a team of OM helpers.

The station was housed on the top of the building of the Council of Europe Radio Club, and used two Kenwood TS-850 radios. Anne Marie and Olga operated on 40 and 80 metres, SSB and Evelyne used CW on 20 metres.

Olga DJ0MCL, Anne Marie DJ0FR, and Evelyne F5RPB sitting at the rigs

Although conditions were not very good (on the Sunday morning they had to compete against a contest) they made 600 contacts and had a good time in the process. A photo of the three YLs illustrates the set-up.

Sudden SK in VK5

We were saddened to be informed of the sudden death of Janet VK5NEI, recently. There was no warning at all of ill health, in fact the family was about to gather for a get-together not associated with illness, a wedding or a death, when it happened.

Three ALARA representatives attended the funeral, Jean VK5TSX, our State Representative, Lorraine VK5LM, one of the earliest members of ALARA and Christine VK5CTY.

In recognition of the long and dedicated service Janet had given to the Country Fire Service, her coffin was covered with her uniform and her hard hat. In memory of the beautiful Dalmatians who accompanied Janet wherever she went, a photo of Janet with the latest two young ones graced the other end of the coffin.

To recognize her membership of ALARA, Jean wrote on one of our yellow scarves and placed it on the coffin.

Janet will be missed by us all but there will always be many happy memories of her, too.

NORTHERN CORRIDOR
WEST AUST
RADIO GROUP

HAMFEST 2006

SUNDAY 6th AUGUST
CYRIL JACKSON CENTRE
FISHER ST BASSENDEAN 9am START
WESTERN AUSTRALIA'S PREMIERE EVENT IS ONCE AGAIN UPON US.
IN THIS, OUR 20th YEAR, WE ARE PROUD TO WELCOME INTERSTATE TRADERS AND EXHIBITORS.
AS USUAL WE WILL HAVE EXCELLENT FOOD AND DRINKS AVAILABLE AT REASONABLE PRICES AND GREAT RAFFLE PRIZES TO BE WON ON THE DAY.
PLENTY OF TABLES AND PARKING AVAILABLE
CONTACT KEITH VK6XH FOR FURTHER DETAILS ON
Mobile 0419 901 539 OR vk6xh@amsat.org
PLEASE NOTE THE NEW DATE !!!
SUNDAY 6th AUGUST 2006

VHF/UHF - An expanding world

David Smith VK3HZ
vk3hz@wia.org.au

Weak Signal

With not a lot happening on the terrestrial propagation side of things, it's probably a good time to have a look at the local EME scene where there has been a bit of recent activity.

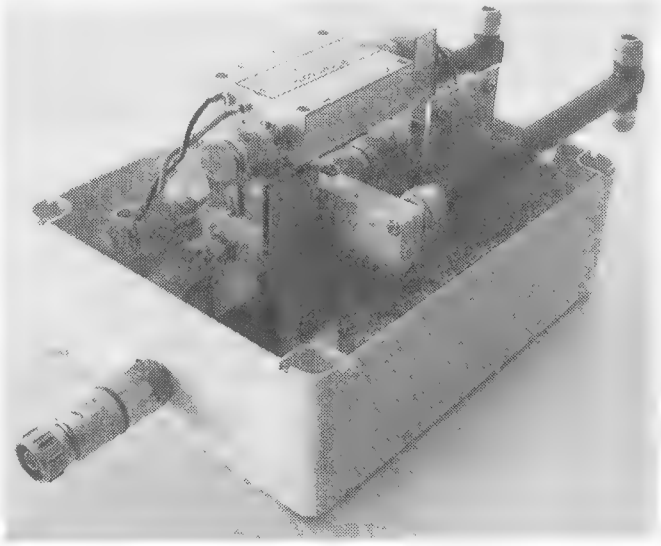
EME operation on the 23 cm band has had a recent surge of interest with a number of new stations becoming active. Doug VK3UM has installed a new dual band feed (70 cm / 23 cm) for his monster 10 m dish and reports "satisfactory" results. Over the weekend of 4/5 March he reports working 26 stations on 23 cm. On the following weekend, during the DUBUS contest weekend, he reports working 35 stations on 70 cm.

As is often the case, these contests are run when the moon is in a northerly declination, favouring the European and US operators, but giving us poor southerners only a limited window in which to work them.

Trevor VK4AFL has also recently commenced operations on 23 cm using a 3.7 m satellite TV dish. While he is finding the dish size a little on the skinny side for EME operations, he has nevertheless detected his own echoes running as little as 35 watts – not a bad feat.

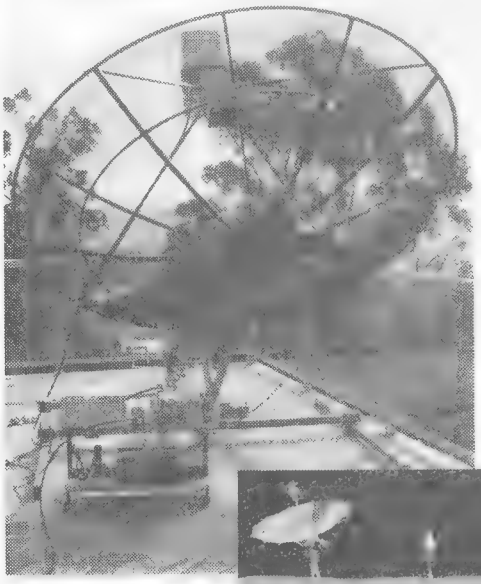
Rex VK7MO has also recently erected a satellite TV dish and become QRV on 23 cm EME. His dish is only 2.3 m in diameter, but he has had some good results, able to work similar size stations. Of course, most of Rex's contacts are using JT65 digital mode. He lives in an area with a good view over Hobart so his neighbours tend to be, somewhat understandably, sensitive to any sort of intrusion in their view.

While radio antennas might be a visual feast for amateurs, they don't have quite the same appeal to the layman. Therefore, Rex has devised a "balcony portable" type setup that can be rolled out of sight when not in use. Nevertheless, it has been spotted by the neighbours, with comments that it looks like he's setting up for a moon landing.



VK3UM New 23cm Dish Feed Switching & Preamp

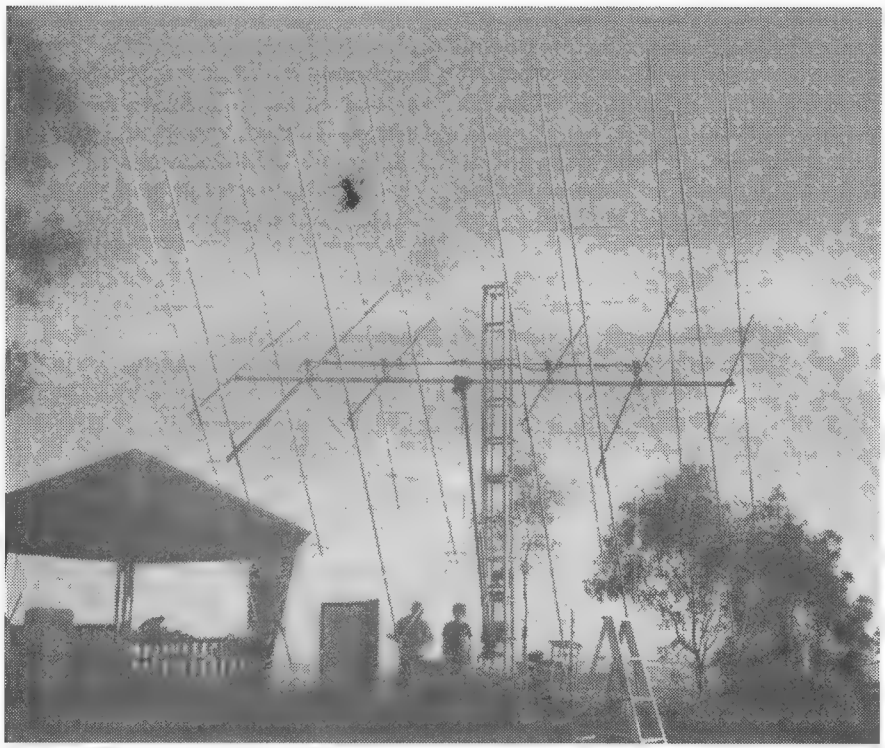
VK4AFL Dish and 23 cm Feed



Both of these are used for Earth/Moon communications. Which one lives on Rex VK7MO's balcony?

While we're on antenna photos, Kev VK4KKD (of "One Man Tower" fame) sent in some photos of his portable antenna setup on its first trial. With the help of Wayne VK4WS and John VK4ZXS, Kev erected the system on a mountaintop near Laidley S.E. Qld for final adjustments.

The system consists of 4 x 12 el DL6WU on 144 MHz and 8 x 28 el DL6WU on 432 MHz. The array is 6 m x 6.4 m x 4.5 m with the top antennae at 10 m above ground, all mounted on a trailer.



VK4KKD's (Kev) Monster Portable Antenna Array mounted on what else but a One Man Tower

The antennas can be pointed upwards for possible EME use. Kev intends to visit many grid squares and should put out a decent signal with this setup.

Aircraft Enhanced Propagation

The morning aircraft-enhancement sessions continue on 144.2 MHz between 8 am and 9 am.

There has been much discussion about the mechanism by which the presence of an aircraft enhances VHF propagation, and I continue to be amazed at the level of that enhancement. Chris VK2DO puts in a mighty S9+ signal at this QTH at times, and at other times is barely audible. While the "S" (guess) meter is rarely an accurate gauge of signal strength, I would estimate the variation in signal level from normal conditions to "aircraft enhanced" to be of the order of 30 to 40 dB.

What aircraft / aircraft types are causing this? Where are they located relative to each of our stations? Which way are they flying? It's been very difficult to find this information in the past.

However, now it is possible, in real time, to see the aircraft flight paths on a virtual radar screen on your own PC. This is possible due to the introduction of an aircraft position-reporting system known as ADS-B.

Suitably-equipped aircraft (mandatory for all aircraft by 2009) "squitter" (transmit) their position information to anybody in the vicinity with an appropriate receiver. The system was originally intended for collision-avoidance between aircraft, but is being extended for future possible use by air traffic control and others. An overview of the system can be found here: www.auf.asn.au/navigation/adsb.html

A UK company has developed an ADS-B receiver and PC software to allow anyone to receive and display current aircraft information: www.kinetic-avionics.co.uk/sbs-1.php . The range of the system is dependent on your line-of-sight (ADS-B downlink is on 1090 MHz) but can be up to 400 km.

A system has been set up in the Sydney area showing local flights: yssyradar.inside.net . You will need to register to get real-time data, otherwise a 10 minute delay is added.

So, a network of these receivers along flight paths between Melbourne, Canberra, Sydney and Brisbane could provide valuable information for the aircraft enhancement operators.

Microwaves

Russell VK3ZQB, Colin VK5DK and Trevor VK5NC have been enjoying their annual microwave operations in Queensland. Despite appalling weather, they achieved some new VK4 record distances. Russell reports:

> We have just returned from VK4 where, as well as holidaying and visiting family, we had a go on 5 GHz and 10 GHz from Cairns to Airlie Beach and later from the Bunya Mountains to south of Millmerran on 24 GHz.
>
> On 17 April, I set up on a hill near Malanda and Colin and Trevor were on a hill near Cape Gloucester – just over 417 km away. On 5.7 GHz, we made contact at 0403Z, exchanging signal reports of 5-7 and 5-9. My transmitter power was 20 watts and Colin's was 16 watts. This considerably exceeded the previous best VK4 distance.
>
> We tried to make a contact on 10 GHz and Colin heard my signal at about 4-1 but I could not hear him at all. Conditions at my location were extremely poor with heavy rain and low cloud. I returned to Cairns to check my transverter and found a problem with the oscillator.
>
> We returned the next day to make another attempt on 10 GHz but could not make contact. We tried 5.7 GHz again and found the signals were weaker than the previous day. Severe rain scatter distortion was experienced and once again, I was in low cloud and heavy rain.
>
> We abandoned further attempts to make contact from these locations.
>
> On return to the Brisbane area we decided to try to extend the 24 GHz record.
>
> On 23 April, I went to the Bunya Ranges and Colin and Trevor were at Mt Domville, 128.8 km away. We established contact with VK5DK/VK5NC on 24048.1 at 0353Z exchanging signal reports of 5-5 each way.
>
> At 0409Z, after optimising the dishes, we again contacted and exchanged reports of 5-9. This is an increase of 10 kilometres on the previous VK4 record.

Thanks to Russell VK3ZQB for that report.

VHF Continues overleaf

VHF/UHF – An Expanding World — continues

UK Microwave Group — *Scatterpoint*

The UK Microwave Group (UKuG) publishes a monthly magazine – *Scatterpoint* - that contains some quite interesting microwave projects and information. UKuG reserves the current year's issues for members only, but the 2004 Scatterpoints are now in the public domain at: www.scatterpoint.org

At the end of 2006, all ten 2005 issues will join the free archive and the process will be repeated each ensuing year. UKuG hopes that this archive will be a source of useful amateur microwave information for all. Material published in Scatterpoint is available for other non-profit amateur radio organisations to use in their publications. Just mention UKuG Scatterpoint when you use it.

If you would like to receive the latest magazines, become one of the many international members of UKuG.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au.

Digital DX Modes

Rex Moncur – VK7MO

Welcome to Gary VK4ABW, near Townsville and Peter VK2IT, in Sydney who are both operational on 2 metres meteor scatter on FSK441. Gary has worked VK4AFL and VK2EAH on Meteor Scatter and is also operational on EME using JT65. Peter VK5ZPG has his system going well and worked A1 VK4EME over 1585 km on meteor scatter and also VK4AFL.

Congratulations to Rhett VK3VHF, on his first EME contact with W5UN using JT65. Rhett achieved this after many attempts using only a 7-element Yagi and 100 watts. Rhett is also very active working up to VK4 during the weekend meteor scatter activity sessions.

Tests on Newcastle channel 5a TV video carrier confirm it as an extremely stable reference on 138.276025 MHz, with a drift of <1 milli-Hz over the last two months against a GPS locked reference.

Joe Taylor K1JT, advises that he is testing a new mode that uses only 5 Hz bandwidth and can decode at -28 dB, with reference to an SSB passband, without the need for the station to be included in the call.txt file.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au.

The Magic Band – 6 m DX

Brian Cleland – VK5UBC

April was another very quiet month on 6m with very few reports of propagation

Norm VK3DUT reports a bit of AU on 14 April (K index 7) with the VK7RST beacon up to 529 AU and on the 15 April he worked Ray VK4BLK at Yeppoon 5x9+. He also reports strong ZLTV on 25 April and weak ZLTV on 4-5 May.

No sign of JA activity down south but there were a few JA openings to Northern Queensland and WA. John VK4FNQ in Charters Towers worked JA1VOK on 5 April and then both John and Gary VK4ABW in Townsville worked several JA's on 7 April. Gary worked JA's on 17 & 27 April. Also on 17 April, Wayne VK4ZRT at Gladstone reports an opening to Japan working several JA's.

On 11 April, Gary VK4ABW worked DS1MFC in Korea and on 15 April worked Jon VK4CY in Brisbane. He had a good contact with Norm P29NB in PNG on 16 April. Great to see 6 m activity from P29.

The VK6RSX beacon in North West WA is regularly heard in Japan.

Please send any 6 m information to Brian VK5UBC at bcleland@picknowl.com.au.

GippsTech 2006

It's that time again. GippsTech 2006 is to be held at Churchill in southeast Victoria over the weekend of July 8th and 9th.

This event should not be missed by the serious weak signal operator.

Details of the programme for the weekend are still being finalised, but a number of interesting presentations are already on the list.

If you have something to present to the VHF/UHF/Microwave community, get in touch with the organisers.

Details may be found at www.qsl.net/vk3bez/

Silent key

Richard (Dick) Andrew VK2UH

It is with deep regret that the Taree & District Amateur Radio Club advise of the passing of Richard Andrew, best known as Dick, VK2UH, on the 26 April 2006.

Dick gained his Novice Amateur Radio Licence in 1979 with the callsign VK2VEX, while living in Sydney. He had been involved with Marine Radio for a number of years previously.

In 1981 Dick upgraded his licence to Limited, with the callsign VK2KRA, which he held for the next 12 years. He moved to Cundletown and joined the Taree & District Amateur Radio Club.

In 1988 he became the club's Broadcast Officer and custodian of the club's callsign, VK2FRE. He ran the club nets on the 2 metre bands and the 80 metre net until it was discontinued in 1990.

Dick upgraded further to an Unrestricted Licence, with the callsign VK2GRA. Later, at the request of the widow of a long time amateur friend who had become SK, he took up callsign VK2UH, which he cherished and used until his death.

Dick was elected Vice President of the Radio Club in 1988 and then as President in 1989. He held that position until 1993, when his health forced him to relinquish the position.

Dick served on the club's repeater committee. He also became an Examiner, appointed by the WIA, enabling him to conduct licence examinations on their behalf. He saw many gain their Amateur Licence or upgrade their current one.

His technical expertise and practical, easy to follow advice, was often sought and very highly regarded by all.

In 1999, Dick was awarded Life Membership of Taree & District Amateur Radio Club, in recognition of his long and devoted contribution to the club.

Dick was a great friend and mentor to all and his dulcet tones will be sadly missed on the Amateur Bands.

Dick's funeral service was held at Cundletown on Saturday 29th April, prior to burial at the Dawson River Lawn Cemetery. Amateurs formed a Guard of Honour, to show their respect for Dick. Sympathy is extended to his family.

VALE Dick, VK2UH

Ross Barlin VK2DVZ, President, Taree & District AR Club Inc.

Beyond our shores

David A. Pilley VK2AYD

Emerging technology: spray on solar cells

The following was spotted in April 7th ARNewsline. Not amateur radio but something that could change our portable operation in years to come!

National Geographic reports on significantly more efficient solar cells. These cells, made from a new plastic material, convert infrared as well as visible light into electric power and can turn the sun's power into electrical energy, even on a cloudy day.

The plastic material uses nanotechnology. Like paint, the composite can be sprayed onto other materials and used as a portable source of electricity. A sweater coated in the material could power a cell phone or other wireless device such as a 2 meter H-T. A hydrogen powered car painted with the film could potentially convert enough energy into electricity to continually recharge its own battery.

One scientist goes even further, claiming the new units are so powerful that covering 1/10th of the Earth's surface with such large-area solar cells could,in principle, replace all of our energy habits with clean and renewable power.

More information is on line at http://news.nationalgeographic.com/news/2005/01/0114_050114_solarplastic.html -URL courtesy of Marv Collins. (CGC).

New Zealand: news from across the Tasman.

The big event of the year is the NZART Convention 2006 held over the weekend of June 2-4 at the Riccarton Park Convention Centre at Christchurch.

NZART report a membership increase of 5%, most of which were transmitting members. The financial statement in their annual report indicates they had a healthy financial year.

Unlike our A-R journal, the NZART journal 'Break-In' is only produced 6 times a year. According to editor John Walker ZL3IB, over the past year there has been an increase in articles dealing with antennas and propagation topics.

Their articles are excellent and they have an agreement with the Canadian magazine to reproduce topical articles which adds to their technical presentation.

For those interested in collecting certificates, NZART will have a special station, ZL6CAN, on air during the conference. Details can be obtained from the NZART web site www.nzart.org

U.K.: Farewell S.W.M.

For some of us 'Old Timers', the U.K. "Short Wave Magazine" was a great manual of information. In the late 40's and early 50's under editor Austin Forsyth G6FO, it was a very strong competitor to the RSGB 'Rad-Com' and 'Practical Wireless'.

Regretfully this long standing publication ceased in January 2006 and has been merged with another PW Publishing publication called 'RadioActive' and will reappear as 'RadioUser'.

At the time of writing this column your scribe has not seen this publication on the news stands in Australia.

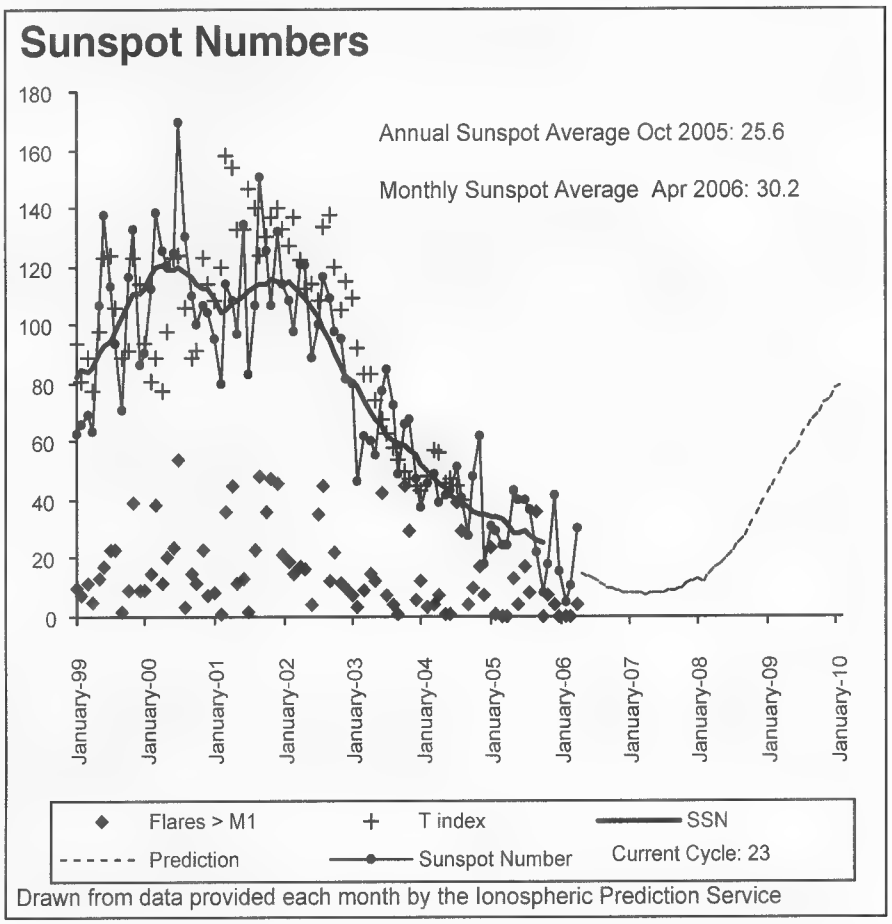
U.K.: Museums weekend special event

Now here's a way to promote Amateur Radio.

The sixth International Museums Weekend special event will take place on the weekend of 17-18 June. Hams around the world are being encouraged to participate in this event by setting up stations in their local museums.

Harry Bloomfield M1BYT, in Leeds England, is the organizer of this year's Museums event. He is asking that all those intending to join in should register their museum via the International Museums Weekend website.

It's in cyberspace at www.ukradioamateur.co.uk/imw.*(GB2RS)*



HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

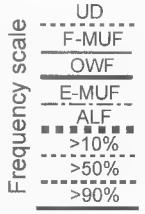
These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

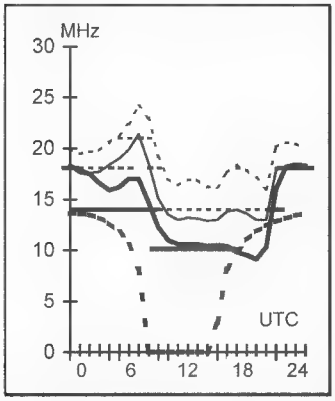
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

June 2006
T index: 14

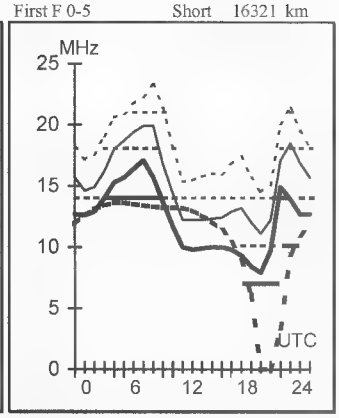
Legend



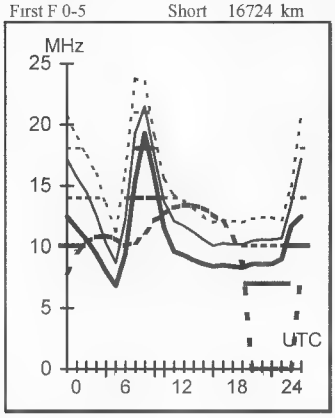
Adelaide-Anchorage 30
First F 0-5 Short 12466 km



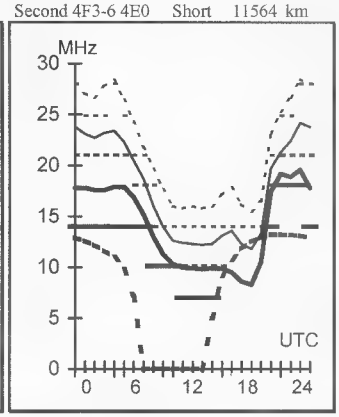
Brisbane-Rome 315
First F 0-5 Short 16321 km



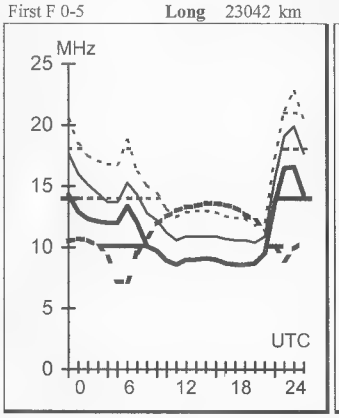
Adelaide-Dakar 233
First F 0-5 Short 16724 km



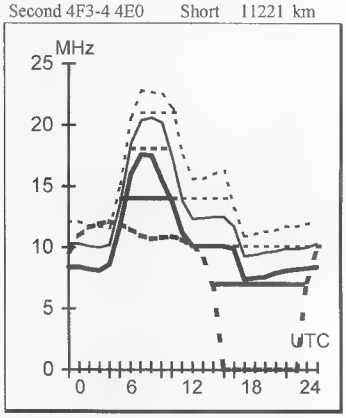
Brisbane-Los Angeles 59
Second 4F3-6 4E0 Short 11564 km



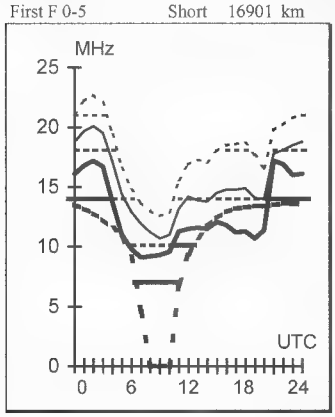
Canberra-London 136
First F 0-5 **Long** 23042 km



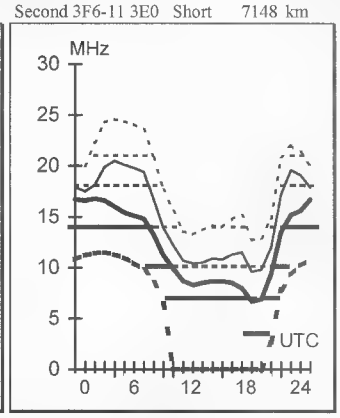
Darwin-Capetown 231
Second 4F3-4 4E0 Short 11221 km



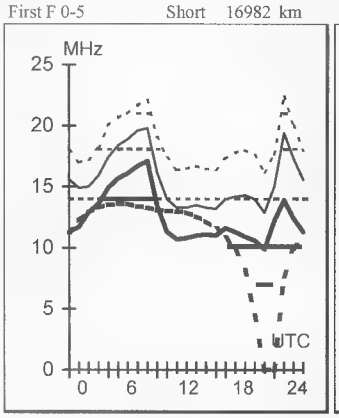
Adelaide-Ottawa 58
First F 0-5 Short 16901 km



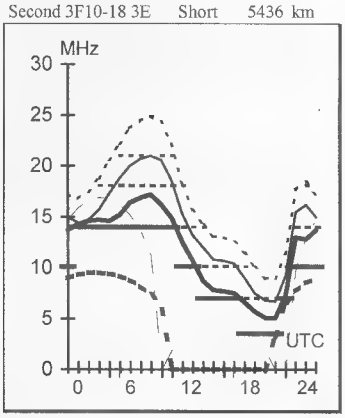
Brisbane-Osaka 344
Second 3F6-11 3E0 Short 7148 km



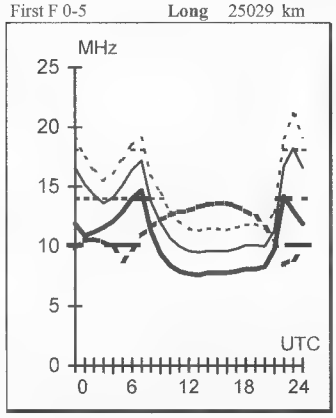
Canberra-London 316
First F 0-5 Short 16982 km



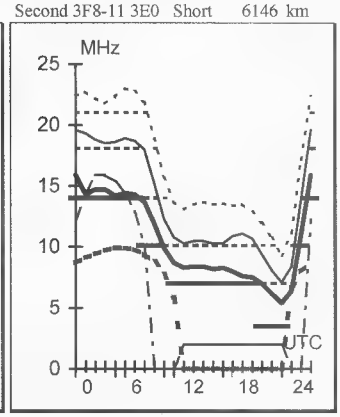
Darwin-Tokyo 10
Second 3F10-18 3E Short 5436 km



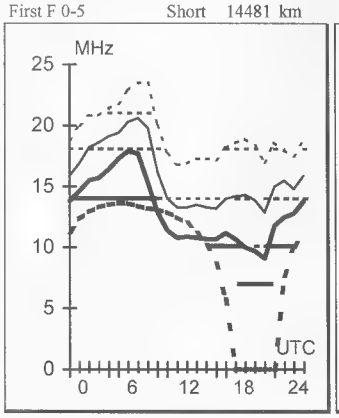
Adelaide-Stockholm 142
First F 0-5 **Long** 25029 km



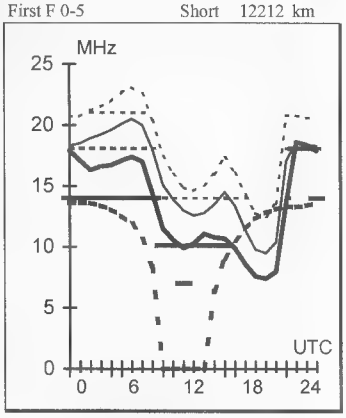
Brisbane-Singapore 293
Second 3F8-11 3E0 Short 6146 km



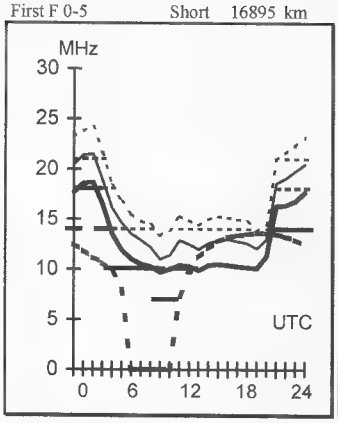
Canberra-Moscow 317
First F 0-5 Short 14481 km



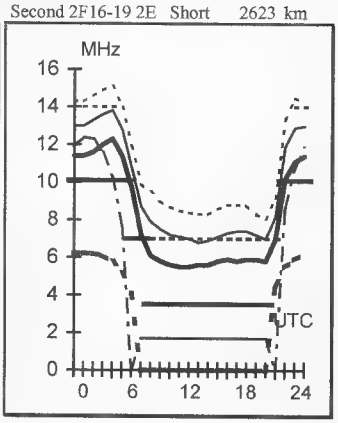
Darwin-Vancouver 42
First F 0-5 Short 12212 km



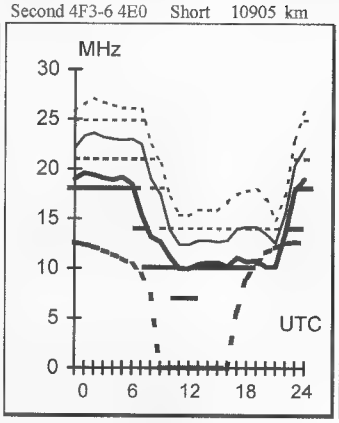
Hobart-Dakar 78
First F 0-5 Short 16895 km



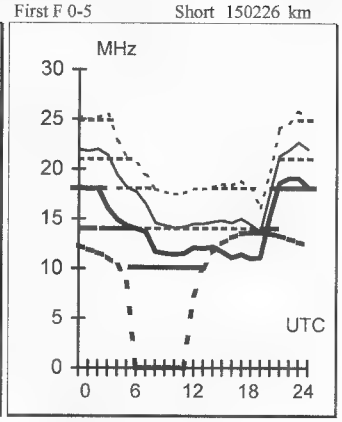
Melbourne-Auckland 97
Second 2F16-19 2E Short 2623 km



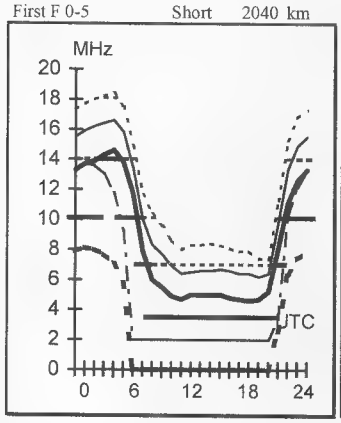
Perth-Honolulu 70
Second 4F3-6 4E0 Short 10905 km



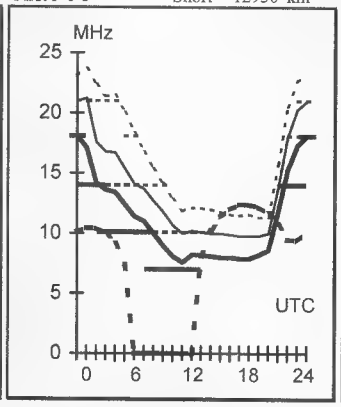
Sydney-Miami 86
First F 0-5 Short 150226 km



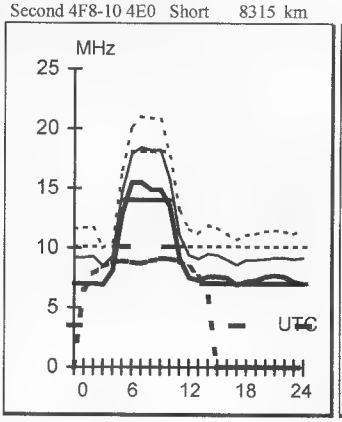
Hobart-Christchurch 101
First F 0-5 Short 2040 km



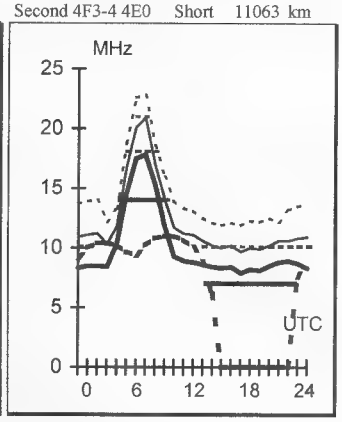
Melbourne-Lima 131
First F 0-5 Short 12950 km



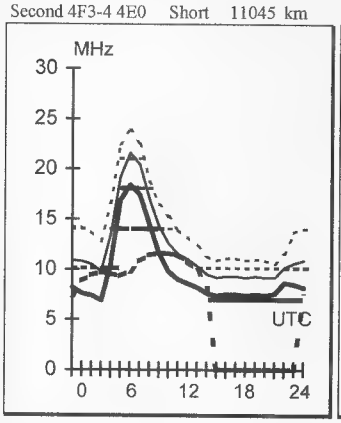
Perth-Johannesburg 248
Second 4F8-10 4E0 Short 8315 km



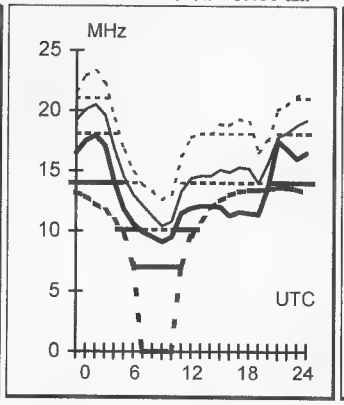
Sydney-Pretoria 230
Second 4F3-4 4E0 Short 11063 km



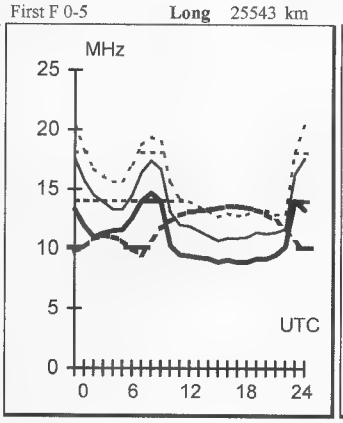
Hobart-Lusaka 239
Second 4F3-4 4E0 Short 11045 km



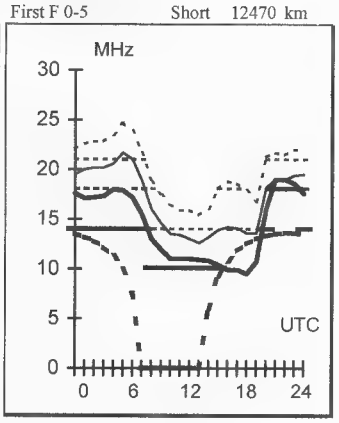
Melbourne-Montreal 62
First F 0-5 Short 16731 km



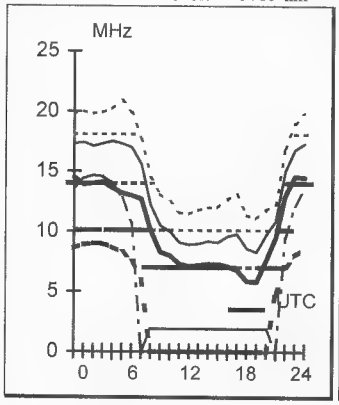
Perth-London 133
First F 0-5 **Long** 25543 km



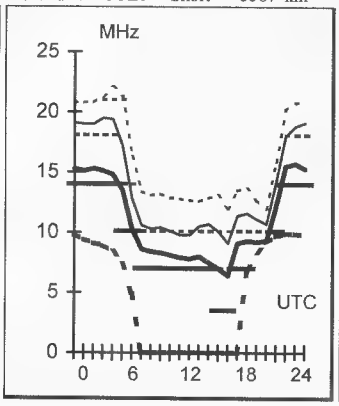
Sydney-Seattle 47
First F 0-5 Short 12470 km



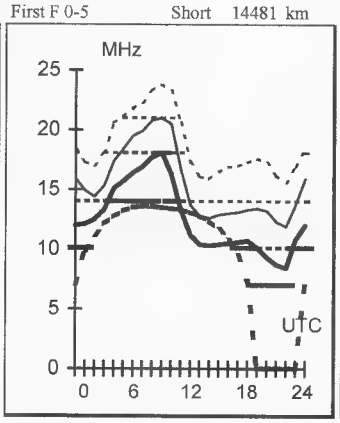
Hobart-Port Moresby 360
Second 2F10-12 2E Short 3710 km



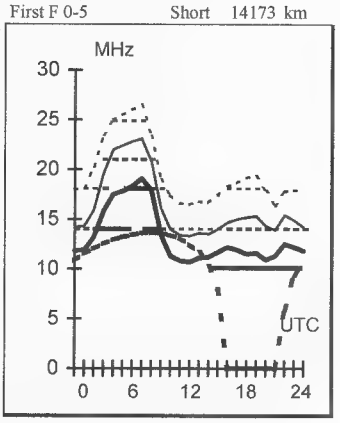
Melbourne-Papeete 90
Second 4F6-8 3E0 Short 5587 km



Perth-London 313
First F 0-5 Short 14481 km



Sydney-Tel Aviv 287
First F 0-5 Short 14173 km



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• Information on Dick Smith Direction Finding receiver model F1000. Am/FM CB/LW VHF Ant data would be appreciated thanks. Malcolm Sinclair VK2MBS QTHR 02 9958 1114

FOR SALE VIC.

• Codan 8528 transceiver - Front Control - Has Option A (Amateur Bands) - SelCall - RFDS Emergency Call button - Interface for Codan Auto Tuner 9103 - SWL capable plus more. Codan Auto Tuner 9103 suitable for Long Wire. Codan 8558D Mobile Auto Tuning antenna with cables, heavy duty spring and spare transceiver power lead. Comes with Instruction Manuals plus Service manual for the transceiver. Originally bought new for $4215.00, will sell the lot for $1950.00 ONO Charlie VK3 FCJW Ph: 0407-535-477 Email chazza52@bigpond.net.au

• AWA AT5/AR8 station equipment. (2) AT5 transmitters, (2) AR8 receivers, (2) Aerial Tuning Units, (1) Type S power Supply, (2) 12 volt genemotors (one for spares), some connecting cables, and handbook. No mounting rack or DF loop. Some work required. Inspection by arrangement. Serious offers as a complete system (preferably), or as individual items. Contacted after mid July . Purchaser to arrange carriage as equipment is heavy and awkward. Rodney Champness VK3UG QTHR, Tel: 03 5825 1354, Email: rodlynn@dodo.com.au

WANTED VIC

• Seeking parts to restore and complete my AN/TRC24 radio system.Seeking following:- Transmitter, T-302/TRC. Power Supply, PP-685/TRC. Receiver, R-417/TRC. "A"Band tuner, AM-1180/GRC. Amplifier/Converter, AM-2537/TRA-25. And any other bits and pieces or books/manuals for this radio. John Eggington,VK3EGG 0409 234 672 03 9819 9065 Email johne@telpacific.com.au

• (1) JR Radio Service Handbook,VR series, issued 1964. (2) Johnson Vikin 500 amateur radio transmitter (circa 1957) with handbook. (3) No 128 2 to 4.5 MHz army back pack transceiver, preferably unmodified. Rodney Champness VK3UG QTHR 03 5825 1354, email: rodlynn@dodo.com.au

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Old valve Commercial AM transmitter like Geloso, Hallicrafters etc. Working or not. Gary: 08 85363126 or vk5dxham@bigpond.net.au

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• Circuit and small component values for MFJ Antenna tuner model MFJ 949B Happy to pay costs VK6ABS QTHR 08 9075 4136

• HF amplifier model Emtron dx-1d. With the led displays . Must be in vgc and not been abused. e-mail vk6wb@wia.org.au or phone/sms on 0407 030 592

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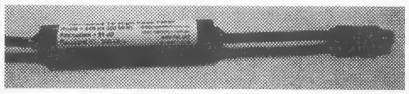

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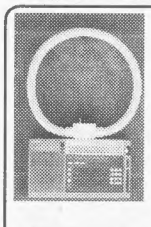

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The Wireless Institute of Australia represents the interests of all amateurs throughout Australia.

The WIA offers one year and 5 year membership for all categories except Concession Student. The fees for each category are:
Full members $75 ($365), Overseas members $85 ($403), Concession members (pensioner) $70 ($332),
Concession members (student) $70, Full members no magazine $50 ($237), Family members $40 ($190)

National Office	Contact	News Bulletin Schedule
10/229 Balaclava Road, Caulfield North VIC 3161, PO Box 2175 Caulfield Junction Vic 3161 Australia	Phone 03 9528 5962, Fax 03 9523 8191, 10am to 4pm daily, nationaloffice@wia.org.au http://www.wia.org.au	Subject to change. See www.wia.org.au follow National News prompts. Contact nationalnews@wia.org.au National VK1WIA news is distributed to all states.

Advisory Committees	Contact	News Bulletin Schedule
VK1 Australian Capital Territory VK1WX Alan Hawes VK1ZPL Phil Longworth VK1ET John Woolner VK1GH Gil Hughes	vk1advisory@wia.org.au	Sundays at 11.00 am VK1WIA 7.128, 146.950,438.050 Canberra Region Amateur Radio Club Email newsletter will be sent on request to president@vk1.ampr.org
VK2 New South Wales VK2QV Chris Flak VK2XCD Chris Devery VK2BFN Adrian Clout	Phone 02 9689 2417 vk2wi@ozemail.com.au vk2advisory@wia.org.au	VK2WI - Sunday 1000 and 1930 hours local.1.845; 3.595; 7.146; 10.125; 14.170; 28.320, 52.525; 145.600; 147.000; 438.525; 1273.500 megahertz. Plus regional relays. VK1WIA news included in the morning
VK3 Victoria VK3JJB John Brown VK3PC Jim Linton VK3APO Peter Mill	Phone 03 9885 9261 arv@amateurradio.com.au	VK1WIA, Sunday 11am and 8pm, 3.615 and 7.085 (LSB), 10.130 (USB), VK3RML 146.700, VK3RMM 147.250, VK3RMU 438.075.
VK4 Queensland VK4BY Don Wilchefski VK4ZZ Gavin Reibelt VK4KF Ken Fuller	Phone 07 3221 9377 vk4advisory@wia.org.au	VK1WIA, Sunday 9.0am via HF and major VHF/UHF rptrs
VK5 South Australia and Northern Territory VK5OV David Box VK5APR Peter Reichelt VK5ATQ Trevor Quick	Phone 08 8294 2992 boxesdnm@lm.net.au peter.reichelt@bigpond.com vk5advisory@wia.org.au	VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
VK6 Western Australia VK6NE Neil Penfold VK6XV Roy Watkins VK6OO Bruce Hedland-Thomas	Phone 08 9351 8873 http://www.vk6.net/ vk6advisory@wia.org.au vk6ne@upnaway.com vk6xv@bigpond.net.au	VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Realaudio" format from the VK6 WIA website
VK7 Tasmania VK7ZAX Phil Corby VK7DG Dale Barnes VK7KK Reg Emmett	Phone 03 6234 3553 vk7advisory@wia.org.au phil.corby@tassie.net.au vk7dg@wia.org.au regemm@ozemail.com.au	VK1WIA Sunday 9am on VK7WI network: 3.570MHz LSB, 146.700 MHz FM (VK7RHT South), 53.825MHZ FM (VK7RAD South), 147.000MHz FM (VK7RAA North), 146.750 FM & 53.825MHz (VK7RNW North West), 146.625 MHz FM (VK7RMD North West), UHF CB Channel 15 (Hobart) and 27MHz CB - 27.225MHz LSB (Hobart). Followed at 9:30am with VK7 Regional News Broadcast also on 7.090MHz LSB & 14.130MHz USB

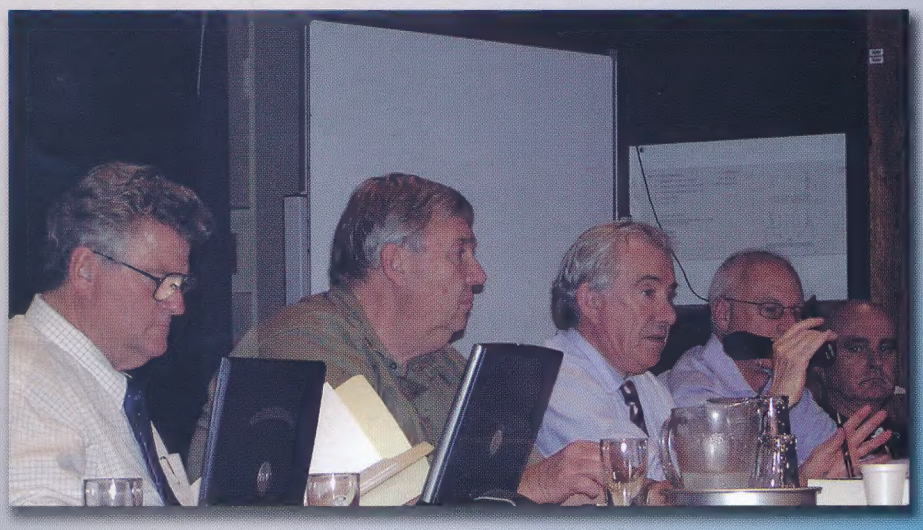
Notes

1. Only three members of the state advisory committees are listed.
2. All listings are preliminary. They will be updated each month as required.
3. Membership application forms are available from the WIA web site www.wia.org.au or the national office address above.

WIA AGM 2006

As reported elsewhere in this issue, the 2006 Annual General Meeting of the WIA was held on May 6 in Bankstown. The event marked the first election since the (re)formation of the WIA as a National body.

By all reports, the formal proceedings were kept as brief as possible. Most reports submitted to the meeting were tabled, rather than being formally presented.



Some of the Board members during proceedings at the AGM. L-R: Vice President Ewan Mcleod VK4ERM, Treasurer Bruce Bathols VK3UV, President Michael Owen VK3KI, Directors Phil Wait VK2DKN and Glen Dunstan VK4DU

An Honorary Life Membership under the new structure was proposed by the Board and confirmed by those present. The recipient, **Bill Roper VK3BR**, was pleasantly surprised when advised of the award. Bill is shown on the cover of this issue, shortly after the formal presentation of his certificate and green membership badge at the last Publications Committee meeting.

The Board also announced the joint recipients of the Ron Wilkinson Achievement Award for 2006 - **Fred Swainston VK3DAC** and **Ron Bertrand VK2DQ.**

Further details of these awards and other aspects of the AGM can be found in the report on the AGM in the WIA Comment section. The detailed reports can all be found on the WIA website.

President Michael Owen VK3KI presents the certificate for the Ron Wilkinson Achievement Award to Fred Swainston VK3DAC, joint winner for 2006 together with Ron Bertrand VK2DQ, for their work on the establishment of the education and assessment systems for the new three tier licence structure.

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